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AUXILIARY MACHINERY OF S.S. "BINTANG" (Drawings). *See p.* 656.

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Physical & Applied Sci. rials

SHIPBUILDING AND SHIPPING RECORD

A JOURNAL OF SHIPBUILDING, MARINE ENGINEERING, DOCKS, HARBOURS AND SHIPPING

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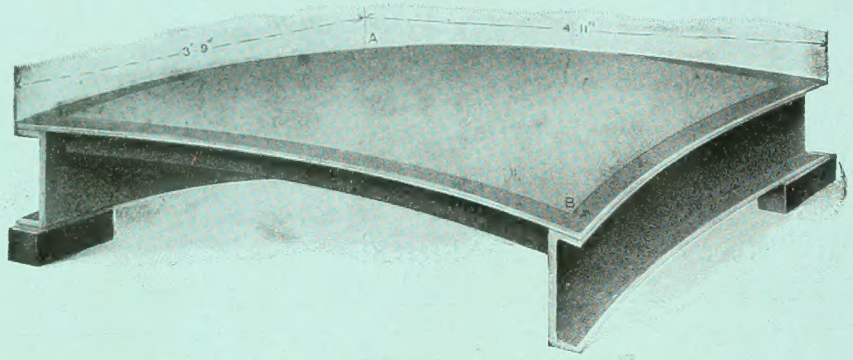

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CLEARLY the House of Commons has no particular desire to see the proposed new Central Emigration Authority inflated into an extensive department, endowed with bureaucratic self-sufficiency. It seems inclined to acquiesce in the principle that information and advice in relation to emigration may well be imparted in a more systematic way, and that the agencies through which emigrants take their passages may be subject to more definite supervision. At the same time, in some sections of the House, the feeling prevails that the administrative structure on which the Emigration Bill will rest should be modest. One way of bringing about that end would be to adopt a definite statutory limitation, beyond which the expenses of the Central Emigration Authority could not legally go in one year. That course has been suggested, and considering the strong spirit of allegiance which the Government usually commands in a time of external danger, the amount of support for a precise figure of limitation was striking. It was proposed that not more than £10,000 a year should be at the disposal of the Central Emigration Authority, and that was only negatived by 129 votes to 105. Mr. Hewins has recognised the strength of the opinion in the House on the subject of a restriction of expenditure. He has on the report stage of the financial resolution himself proposed the insertion of a limit of £50,000 to the annual expenditure under the Bill. Some members of the House thought this rather too high, but it has been agreed to. The proceedings in committee of the Bill show that there is the disposition to overhaul the Bill.

Central Emigration Authority

No operations are to be undertaken at present in connection with any scheme for a Forth and Clyde Ship Canal. Dr. Addison, the Minister of Reconstruction, made this announcement in the House of Commons on Monday. In some quarters the decision will be received with regret, but in others, where criticism of the project was made, other feelings may be uppermost. Dr. Addison did not state the reasons for the conclusion which the Government has come to. Whether it was held back by the amount of the expenditure which would be involved or whether the advantages of the scheme were considered to be incommensurate with the cost, we are not told. The Admiralty, it may be assumed, must have formed opinions about the strategic value. But particulars on these matters have not transpired. For the time being no operations will be undertaken. In fact, further survey of the alternative routes will not for the present be made. This is not the first time that the project of joining the Forth and the Clyde by a waterway for ships has been explored. The Royal Commission on Canals examined the subject some years ago.

Forth and Clyde Canal.

For some time past complaints have been voiced in the insurance market against the policy of American underwriters in renewing hull insurances at the rates in force on the expiring risk. In our issue of May 30 we showed to what an enormous extent the cost of American repairs had increased and commented on the short-sightedness of permitting renewals on last year's terms. It would seem that the American market is at last awake to the folly of its action in this matter. A complaint in a Pacific Coast journal, not only confirms this, but divulges the fact that in many cases the limitations of the disbursement clause have been waived by the local underwriters, an act which militates so greatly to their disadvantage that their slackness can only be described as criminal. Further revelations as to the manner in which time and material are wasted are made in the same journal. A case is quoted where two men and a boy on a riveting job took 30 minutes over the fixing of five rivets, their wages on a time basis making a considerable hole in the underwriters' pockets, apart from the ever-mounting charges for dry-docking and suchlike expenses. It can only be hoped that now this matter is being ventilated on the other side that stringent action will be taken by the underwriters concerned, in order that the insurance of American steamers can be placed on a basis which at least gives the insurers a run for their money.

American Insurances.

There seems to be an inclination on the part of underwriters to take up the matter of the delay which is frequently experienced in the closing of risks, once they are written. It is true that the majority of these cases are those dealing with re-insurances where exact details are sometimes difficult to arrive at, but it is not infrequent that an original insurance has been on risk for some time before the policy is finally presented for signature, or, in the case of a company, the closing slip is sent in. It is a matter for congratulation that the hull market, with which we have principally to do, is less lax in this respect than the cargo market, but even here there is sometimes a long period of time between the inception of a risk and its definite closing. The reasons why this dilatoriness is undesirable are manifold, but two are of great importance. It is imperative that an underwriter should know as soon as possible the exact extent of his liability on a risk, and it is equally important that he should receive his premium as soon as it becomes due. Of course, theoretically, the premium must be paid as soon as the risk commences. In practice credit is given to

Belated Closings.

a certain date, usually the 8th of the following month, but it has become the established custom to make the date from which the period of credit is reckoned the date of the signing or closing of the risk. This means that any delay deprives the underwriters of the use of a considerable sum, and apparently this is now becoming generally recognised and action will probably be taken in the matter in the near future.

India General Navigation Accounts.

The accounts of the India General Navigation and Railway Company for the year 1917, which have been issued this week, must be regarded as satisfactory, as they cover a period when revenue from Government charters ceased and the absence of shipping caused traffic to be very uncertain. The profits are on much the same level as previous years. A new item appears among the reserves in the balance sheet under the title of "reserve for fleet replacement" of £142,264. At the meeting on June 17 the chairman will doubtless give a full explanation of this item, but it may be presumed that it represents the amount fixed by the Arbitration Commission, which was appointed last year to assess the values of the vessels which had been used by the Government on charter and have since been purchased outright. The company has of necessity, owing to the absence of raw materials, had to forgo the maintenance of its fleet (more particularly its flats and barges) at the full pre-war standard of efficiency, but the reservation of this sum for fleet replacement indicates that the directors are alive to the future shipping position. The dividend is 8 per cent., which shows that the shareholders have not made exorbitant profits, and we are glad to note that the authorities have at last freed the company from the unfair double tax.

The State as Shipowner.

Sir Owen Philipps spoke the simple truth when he said the other day at the annual meeting of the Royal Mail Steam Packet Company that no British industry was less adaptable to State ownership than shipping. Having only a very superficial knowledge of the business, the man in the street naturally finds it difficult to realise that. He fails, for instance, to grasp the important fundamental fact that unlike the great majority of other British businesses, shipping's scope is not narrowly national but widely international. With the conditions normal, a considerable amount of the United Kingdom's tonnage trades between foreign ports, and finds it highly profitable to do so. These are, no doubt, the trades which Sir Owen Philipps had in his mind when he talked about shipping business "created and built up by successive generations of strenuous and enterprising men," for they unquestionably owe their existence to individuals who foresaw their possibilities, nursed them through many difficult and discouraging years, and developed them into highly prosperous undertakings. No State-owned mercantile marine could have done that. We do not say so because we believe that Government officials are incapable of development work of this character. There is, as a matter of fact, no need to look at that aspect of the matter at all. The truth is—and it is perfectly plain to anybody who cares closely to examine the question—that the principle of State ownership is inapplicable, and any attempt to apply it would probably lead to disaster.

German Baltic Ports and the Russian Peace.

One of the main reasons why the competition of the Russian Baltic ports, Libau and Riga, was felt so keenly by the German ports Memel, Konigsberg and Danzig before the war, was (says *Hansa*) that freights were unequal and in favour of the Russian ports. For example, the freight on 10 tons from Wilna to Konigsberg was £6 5s., compared with £5 4s. to Libau; and from Charkow to Konigsberg was £23 18s, compared with £21 to Libau, although the distance from Wilna to Konigsberg is 21¼ miles, and from Charkow to Konigsberg is 25½ miles less than the distances to Libau. This difference in rates was abolished by the recent peace treaty, one clause in which states that Memel, Konigsberg and Danzig are to be treated on the same basis as Libau and Riga in respect of tariffs for grain, hemp, flax and timber. Subsequent events have, however, "made this advantage illusory, for one has now to reckon with the possibility that Russia will send her exports through Petrograd, to which place the freight agreement does not apply!" In order to cover such contingencies, the Konigsberg Chamber of Commerce now asks that all Russian Baltic ports should be subject to the same conditions of non-preference as Libau and Riga. It is also pointed out that railways in the new State of Poland, and in other western states "liberated" from Russia, form the main lines of access to Greater Russia and to the Ukraine, so that suitable agreements must be concluded with these railways as well so as to secure the interests of German ports for a long time to come.

Prize Court Work.

Some interesting sidelights on the war have been made public in the Prize Court. The circumstances of the capture and subsequent loss of the Hamburg South American liner the *Santa Catherina*, have just transpired, owing to the claim against the Crown by certain cargo owners for damage for the loss of their goods through the alleged negligence of the captors. This vessel was taken by a British cruiser shortly after war broke out in the South Atlantic. She was anchored outside territorial waters and left in charge of an armed merchantman. The bunker coal ignited and the *Santa Catherina* was scuttled to prevent the glare attracting the attention of any of the German cruisers who were then hovering about. Sir Samuel Evans negatived the alleged negligence and dismissed the claim. It is remarkable that at this stage of the war the Prize Court should still be occupied. German shipping was practically swept off the high seas in the first weeks of the war, but the transport of goods destined for Germany went on in neutral bottoms and under various disguises for a considerable time. It is satisfactory to observe that the Court has exercised its power to rescind the release of goods claimed by a neutral when it has been discovered that the release had been obtained by deliberately misleading the tribunal.

Ship Delayed for Armament.

Obviously the one reason why Mr. Justice Sankey disallowed the claim of the charterers to make a deduction from the hire payment to the owners of the *Atherstone* for certain deviations and delays was that these did not constitute any breach of contract. The vessel, which belonged to Radcliffe & Co., was under time charter to the Compagnie Générale Transatlantique. She was at New York, prepared to proceed to Havre, when the British Transport Officer directed that she should go to Halifax to be armed with a gun for defensive purposes. As a British vessel she was bound to comply with these orders, but on arriving at that port, the armament could not be supplied owing to a scarcity of guns. She was allowed to proceed to Havre in company with another British vessel which carried a gun. This visit to Halifax consumed more than a fortnight. The *Atherstone* received a gun at Havre, but was detained 26 hours waiting for a gunner and shells. For these delays the Compagnie Transatlantique claimed to deduct £4,877 from the amount of chartered hire. They contended that the absence of a gun at New York rendered the vessel unfitted for the contemplated voyage. It was found by the arbitrator that the ship at New York was in every way fitted for service under the charter party. The judge held that the issuing of the Admiralty order, which the owners were bound to obey, to proceed to Halifax, did not make the ship unfit for service. Similarly at Havre the delay was out of their control. No breach of contract on their part could be cited, and therefore no legal ground existed for making a deduction from the chartered hire.

Since we alluded to the need for greater publicity for the United Kingdom's merchant shipbuilding efforts, a distinguished shipowner has expressed views to much the same effect as our own. Sir Owen Philipps hopes before long to see in operation a system of much greater publicity, and agrees that there is need of it in order to stimulate production. By means of graphic charts, American workers are enabled to see, he says, what each yard is producing. By encouraging friendly competition between yard and yard, river and river, district and district, effort is stimulated and the best and speediest results are obtained. Presumably, Sir Owen Philipps would like to see such a system in operation on this side of the Atlantic. A good deal less would content us—not because we consider the American provision to be excessive, but because we feel that the Controller-General of Merchant Shipbuilding already has quite enough to do. We suggest, however, that this is work which the National, District and Yard Committees, provided for in the York agreement, might very profitably to the interests of the industry take in hand. Their organisation is ideally suitable because in it every producing interest is linked up, locally and nationally. Moreover, by devising and putting in operation a scheme calculated to stimulate the production of merchant ships they would be carrying out the principle object of their corporate existence—which is, as far as possible, to increase tonnage output.

Stimulating Production.

While the political aims of Labour are clear enough to the ordinary person, the economic aspirations of the workers remain tantalisingly obscure to him. He reads, of course, the resolutions which annual conferences debate and duly pass, and tries to gather their exact significance. But, as a rule, he fails, largely because, while there appears to be absolute unanimity on abstract principles, practically none is shown in the application of the principles. For example, few representative gatherings of Trade Unionists ever disperse without putting on record their opinion that a shorter working week is necessary in order to give the workers more leisure to improve their minds and rest their bodies. Yet there is nothing like agreement as to what the desirable shorter working week is. The claims of some individual Trade Unionists are so extreme as to rule themselves out. It is doubtful that even the extremists who make them are serious about them. The demands of Trade Union district committees come, however, into a different category, because they express the views, not merely of one or two individuals but of hundreds—in some cases thousands—of workers and are seriously put forward. To these the public is bound to pay attention and, in fact, does pay attention. Yet what does it find? In the case of one of the most important organisations in the country the ideas entertained by District Committees of the desirable shorter working week range from 44 hours to 50 hours; and hours is not the only question on which there are wide differences of opinion. The conclusion seems to be unavoidable that in detail the economic aims of Labour are singularly diverse.

Labour's Economic Aims.

Among the many interesting methods that have been put forward for the rapid reconstruction of the German Mercantile Fleet, standardisation has not played a very prominent part, but in a recent issue of *Stahl und Eisen*, W. Kreul advocates an extensive application of the principle of standardisation, not only as applied to methods of construction, but also to the selection of types and dimensions of ships. The author divides his remarks under four headings: (1) Choice of the most suitable dimensions of the ships, using standardised models; (2) standardisation of the components of the ship; (3) simplification of the manufacturing processes; (4) the introduction of accelerated processes of manufacture. A table is given showing the leading dimensions of 161 cargo steamers, with lengths between 160 ft. and 500 ft., built in German yards during 1911 and 1912. These ships are divided into twelve categories each of approximately the same dimensions, and it is concluded that the difference in dimensions is often so small that it would be economical to replace several types by a single type. Standardisation of plates, rivets and other parts is discussed, and with a view to the simplification of manufacturing processes, methods of bending angles and plates, cutting and welding, perforating plates with rivet holes are considered, and the provision of suitable dies for this process, the use of pneumatic hammers, electric and hydraulic riveting machines, and of devices for painting is discussed. In concluding it is pointed out that it is desirable that the whole of the operating should be controlled from one centre by an independent organisation.

German Reconstruction Plans.

Until quite recent times it was considered absolutely essential to the stiffening of the side plating of a ship, that longitudinal side stringers should be fitted between the bilge brackets and the beam knees, this being in accordance with Lloyd's Rules. Many vessels are now, however, being built without side stringers, compensation being provided by slightly increasing the thickness of the side plating, by increasing the depth of the bilge brackets, and in some cases by increasing the depth of the beam knees, these modifications being sufficient to satisfy the Rules issued by the Classification Societies. Many advantages follow the elimination of the side stringers. In the first place there is a considerable saving in the cost of construction of the vessel; moreover, there is additional cargo space, and the ship is very convenient to discharge, there being no shelves for the lodgement of such cargoes as grain and coal. Further, the increased depth of the bilge brackets either avoids or reduces the amount of frame turning and at the same time reduces the unsupported span of the frame between the bilge brackets and the beam knees, which admits of a reduction in the size of frame, so that it is possible to utilise bulb angle frames instead of the built sections provided for by the Rules. It is open to question, however, whether it is structurally safe to dispense entirely with side stringers, although the fact that many vessels are now being built thus would tend to show that shipbuilders are at least convinced of the advantages which result from this method of construction.

Stringerless Ships.

During the Committee Stage of the Finance Bill last week, the important question of deduction for wear and tear of plant was again brought to the fore in connection with the increase in the income tax rate. It was sought to provide a means whereby any person dissatisfied with the amount of deduction for wear and tear "including special depreciation or obsolescence" should be entitled to have the matter settled by a Board of Referees. As the law now stands an aggrieved person has to get everybody together who is engaged in a particular class of trade or business and make a joint application to the Treasury. This question is of particular interest to shipbuilders and marine engineers, particularly at the present time, in view of the rapid depreciation of machinery consequent upon its almost continuous employment, often at the hands of unskilled operatives, and in view frequently of its rapid obsolescence, due to the developments which are continually being made, such as for instance the displacement of reciprocating engines by steam turbines. The Government admitted that they were fully alive to the importance of the subject, since they had considered whether they could appoint a Committee to examine this and other kindred matters, but owing to the war, they had been compelled to abandon the idea. They made an immediate concession, however, by granting the right of appeal, and subsequently, as a result of the case put forward by a

Depreciation of Machinery.

deputation from the Parliamentary Committee of the National Union of Manufacturers and the Federation of British Industries. Mr. Bonar Law agreed to further concessions including allowances to be made for the first time for depreciation in the value of buildings and a right of appeal to the Board of Referees.

COMPETITIVE SHIPBUILDING.

FEW readers who know the United Kingdom's shipbuilding industry intimately will disagree with the view that it would stimulate production to copy the publicity methods of the United States. To date, far too much reticence has been practised by British industry, or its controllers, with the result that public interest in the production of shipping has declined to the point of disappearance. No doubt there were, for a time, sound strategical reasons for even the silence about merchant shipbuilding. We leave readers to guess what these reasons were. It would also have been to hurt military interests to allow much to be said about the details of the standard ships—about the details in fact of almost any type of merchant vessel in course of construction. But it is not to be harshly critical to suggest that the official reticence was, in almost every instance, carried to excess, and that if its effects on public interest had been clearly foreseen it would not have been. If it had not been carried to excess, the knowledge of the shipbuilding position eventually conveyed to the public would not have jarred to the extent it did.

We have already expressed our opinion as to the unfairness of enforcing silence on British shipbuilding while its rivals were free to impress the world of prospective buyers with widespread accounts of their achievements. But in this consideration of the matter we are less concerned about the industry than we are about its fulfilment of the national obligations which the war's necessities lay upon it. Increase of its output is vitally necessary. The manufacture of steel has been reorganised in order to assist in the bringing about of that end, and with a similar object the supplies of suitable shipyard labour are being improved. Under Lord Pirrie, the administration of the Admiralty Merchant Shipbuilding Department has been recast and quickened. Already it is beginning to give results, and as the summer progresses these results should get better and better. Whether they show the anticipated progressive improvement depends, however, on the amount of extra effort which each yard, each employer, and each workman exerts, and whether these extra exertions are, or are not, forthcoming seems to depend largely on the extent to which public interest is stimulated.

It is not in the least degree doubtful, we think, that the end in view can best be served by encouraging what may be called competitive shipbuilding. Even British workmen who do not back race-horses or bet on football matches are keen sportsmen, and nothing is better calculated to be a spur to their efforts than the knowledge that they are competing with other workmen for money prizes. Many men who would not touch a Premium Bonus job, which looked like a miniature gold mine, with a long pole, would work themselves off their feet, so to speak, to decide a 5s. bet. For a considerable number, no doubt, the glory of excelling would suffice; but to expect something for nothing from ordinary human nature is to take unnecessary risks of disappointment. The money given in prizes would be well spent if the effect of its expenditure were to increase output.

For reasons which are not obscure, the first attempt to stimulate production failed. Largely because the Trade Union most concerned objected, riveting record-breaking was not persisted in—not, at any rate, to the extent hoped for. Obviously, it was not the best expedient which could have been adopted, for the achievements of the hand riveters were eclipsed, from the point of view of the public, by the machine men working on the ground. In addition, the records were soon far beyond the reach of the average pneumatic riveter, and it was the output of the average man which was most in need of stimulation. The *Daily Mail's* offer of prizes for good time-keeping is a much more promising affair, and if it goes through—it looks at the time of writing as if it were going through in an amended form—the good effect on output should be very considerable. The impression is that the industry's new Joint National, District, and Yard Committees will work the scheme and probably follow it up with others. As we saw in the case of the riveting competitions, efforts of this character are unlikely to succeed unless they are combined with organised newspaper publicity. The Admiralty's views as to what information may safely be given are, therefore, not unimportant.

In our opinion, however, less trouble is likely to come from that quarter than from the particular trade union section which, for inadequate reasons of its own objected to the riveting competitions, and for no reason at all which is of the least consequence, objects to the time-keeping competition. This section is a minority of even its own class, and its objections will on that account be almost certainly over-ruled. But, if it likes, it can do a great deal to make the scheme abortive, and it would be foolish to shut our eyes to the possibility that it may. But if it does, public opinion will have to be reckoned with, and the first pertinent argument the man in the street uses will almost certainly be to the effect that as increased output is vitally necessary, nobody has any right to object to competitions unless he has something else suitable to propose in their stead. The country needs ships, and no class or personal consideration should be allowed to come between it and them.

SHIPS AND MORE SHIPS.

AN Exchange Telegraph message from Washington on Monday announced that, in the "first five months of 1918, 629 ships of 687,055 gross tons have been built in the United States." Unfortunately, shipbuilding figures have a habit in the States of cropping up in such unexpected places and in so many different ways that references to output sometimes mean boats completed or ready for service, not infrequently bare hulls put into the water, and occasionally both. It is therefore not an easy matter to determine from a few words in a cable message exactly what is meant. Nor is the situation rendered clearer by confusion between gross and deadweight and displacement tons. The figures issued by the Admiralty and published in our issue last week showed that during the same period there were completed in the United Kingdom 629,087 tons gross, at which rate we are building 1,500,000 tons a year.

The joint efforts of the two countries on this basis is still too low for Allied requirements in view of the wastage taking place, and a considerable improvement in output must yet be accomplished before the workers, the employers and the respective Governments should entertain any feeling of security. Fortunately, so far as this country is concerned, the chaos and muddle in which shipping and shipbuilding had become involved are, under the guidance of expert hands, becoming resolved into a more ordered state of things. The evolution has been slow and may yet be tedious. Zealous amateurs, no matter how well intentioned, are apt to leap before they look, and the process of rectification involves loss of time and, to the public, lack of confidence. The ruthless commandeering of ships at the beginning of the war would have been less disastrous had there not been subsequent mishandling of shipping. Sir Joseph Maclay still grapples with a difficult problem in consequence. When the now liquescent Controllership of the Admiralty was instituted a year ago merchant shipbuilding output in this country was but a shadow of its former self. The ensuing twelve months have shown the country what an uphill task it is to rehabilitate an industry of this character. We do not say the period has been spent altogether wisely, but there is now evidence that shipping and shipbuilding are coming more into their own, and

that those who have been responsible in the past for the maintenance of the supremacy of the British mercantile marine—and made it pay too—are having a voice in the control of what to them is second nature.

Unfortunately public memories are short, and the people, like individuals, are apt to lack a spirit of gratitude when the needs of the moment are satisfied. Sir Owen Philipps, in his speech to the shareholders of the Royal Mail Steam Packet Company, which we give on pages 665, 666, outlines some of the needs of the hour and of the future. There is need of a more vigorous offensive in the future to remind the public what they owe to British shipping and the manifold industries which supply the ships. America is aroused to a pitch of excitement by the publication in war time of facts and figures of shipbuilding and shipowning effort. A freer hand could advantageously be given in this country to the Press generally and so keep before the public the urgency of "ships and more ships."

ELECTRICAL STEERING GEAR.

THE extended use of electricity on board ship leads inevitably to proposals for the application of this most convenient form of power to each and every one of the operations which require power for their successful performance, and it is not to be wondered at, therefore, that electricity should be applied to the rather intricate mechanism which is required for the successful manœuvring of a ship. The requirements of a steering gear are many and onerous, if it is to be successful and trustworthy in its operation, and amongst the most essential may be mentioned, (1) it must be capable of moving the rudder to any position with as little delay as possible; (2) it must hold the rudder in position under the stresses imposed in manœuvring the ship; (3) it must give way before any abnormal stresses such as those caused by a wave and then return automatically to its former position, and of course it must be absolutely reliable and must operate with the greatest possible economy. It is claimed that savings of as much as 6 per cent. of the running distance of the vessel per annum can be secured with the most sensitive steering gear. To fulfil the above requirements, steam, hydraulic and electric power, have all been employed, and while steam is used to a far greater extent than either hydraulic power or electricity, it is claimed by the advocates of the latter that it fulfils all the requirements of an ideal steering gear to a far greater degree than either of the other two forms of power mentioned.

Steering gears may be divided into two classes, viz, the direct connected and the indirect connected. In the former the engine or motor is direct connected through gearing to the rudder quadrant, while in the indirect system the engine or motor is placed in a convenient position in or near the engine room, a chain or rope to the tiller or quadrant passing over a drum which is operated by the engine or motor. It is recognised that the direct system is by far the better of the two, but owing to the loss of economy in running steam pipes to the after end of the ship, the indirect system is the more common when steam engines are employed. With the electric steering gear, however, the laying of control wires to the motor situated near the quadrant is not accompanied by any drawbacks, and hence the direct system is always employed. Steering gears may be further classified according to the system of control adopted, these being the follow-up system and the non-follow-up system. In the follow-up system the power operating the gearing is automatically cut off when the rudder has reached an angle corresponding to a position determined by the man at the helm. In the follow-up control system as applied to electric steering gears there is a master controller located in the steering house and connected to the steering wheel by shafting and ropes, thus making it possible for the helmsman to set the steering gear at any desired angle, since the motor will automatically accelerate and move the rudder to the predetermined angle at which the follow-up control will automatically stop the motor. In the non-follow-up control a master switch or switches are supplied, making it possible for the operator to start the motor by a small movement of the master switch from any desired station on the ship and to shut the motor down when the rudder has reached the desired angle. With this form of control it is obviously necessary to have a helm angle-indicating device.

Various methods of carrying out the control and regulation of the electric motor have been devised, but they may be broadly classified as either variable voltage control or variable resistance control. In the former the equipment consists of a rudder motor, motor generator, switchboard, steering stands, selective switch and limit switch. The speed of the motor is controlled by varying the field strength of the generator, and there is no follow-up device. In the latter the power for the motor is taken direct from the ship's mains, there being a contactor controller with rheostats, a limit switch and any desired number of master steering controllers, the lever of these controllers having a steadying grip for the helmsman the lever automatically returning to the off position if released after having been moved in either direction. Here again there is no follow-up device, the rudder starting promptly and continuing to move in the direction indicated by the master steering lever until the lever is returned to the off position. The rudder is stopped almost instantaneously by a powerful dynamic brake and a magnetic disc brake mounted on the armature shaft.

Among the many advantages claimed for an electric steering gear are the reduction of the weight and space occupied by the driving mechanism, and the obtaining of a mechanism that is more efficient in its operation than steam. The master controller may be located in the wheel house, and the motor, as already mentioned, is in the steering compartment aft, in which case only the wires for conducting the current from the controller to the motor are required. This makes a very simple arrangement and is preferable to either long steam pipe lines or to an arrangement of ropes or chains between steering engine amidships and the tiller or quadrant aft. However, the great drawback of all electrical machinery on board ship, caused by the corrosion of copper or brass contacts when exposed to salt water or sea air, must not be lost sight of when a comparison of the various methods of operating the steering gear is made.

PUBLICATIONS RECEIVED.

[*A short notice of any publication does not necessarily preclude the subsequent appearance of a longer review.*]

Handbook of Ship Calculations, Construction and Operation. By Charles H. Hughes. London: The Library Press, Ltd., 26, Portugal Street, W.C.2. $4\frac{3}{4}$ in. × $7\frac{1}{8}$ in. × $1\frac{1}{4}$ in. 740 pp. with 115 diagrams. Leather, 22s. 6d. net.

The tremendous impetus given to the shipbuilding industry in the United States by the war was bound to leave its impress on the technical literature of the country, and we have frequently been called upon to review a treatise dealing with one or other of the many phases of the art of shipbuilding which has been published on the other side of the Atlantic. The book under review seeks, however, to include within its covers not only all the ramifications of science and technology as applied to shipbuilding, but also all those rules of thumb and formulæ—which after all are not based upon scientific knowledge being incapable of mathematical proof—which bear the hall mark of universal acceptance and application in the art of shipbuilding. Nor are the contents of the book confined only to those calculations necessary in the construction of ships, the many problems which demand solution for the economical and successful operation of ships are also considered, so that there is no branch of the two vast professions of shipbuilding and ship management, with the exception of the actual art of navigation, which is not included, albeit very briefly, within the 740 pages of this book. It must be conceded, however, that the greater portion of the book deals with ship construction and equipment, this portion claiming the first nine sections of the book, the tenth and last section alone dealing with ship operation, although it may

be readily conceded that the author has successfully achieved his purpose of assembling in a single publication, and in convenient form, practical data for everyday reference for men engaged in the designing, building and operation of ships.

After a very complete section, comprising all the weights, measures and formulæ (in mensuration, &c.) which the reader of the book is ever likely to require, there follows a section on the strength of materials, which, as far as possible, is illustrated by reference to the problems met with in the design of the hull, machinery or equipment of a vessel, such as strength of rivets, pipes and davits. A long section on shipbuilding materials is next given, which is exhaustive enough to include steam pipe covering, &c. The fourth section deals with the various ship calculations which form the preliminary work to the laying down of any vessel, such as the determination of the various coefficients, curves of stability, approximate indicated horse-power, and so on. The actual details of hull construction are dealt with in the succeeding section, this including the particular problems met with in the construction of almost every type of vessel, both large and small.

The problem of the various types of machinery receives a large measure of treatment, section six, under the heading of machinery, dealing with the general problem of steam raising and its application to either reciprocating engines or turbines and to the various engine-room auxiliaries. The internal-combustion engine is considered, as also is the problem of oil fuel for boilers, and the rules and formulæ for the design and construction of propellers and paddle-wheels are included in this section. A section is devoted to electricity and its application on board ship for lighting and for the operation of motors for ship work, and another section deals with the ventilation, drainage, heating and refrigeration of the different parts of a vessel. The problems and details of ship equipment are considered in the ninth section, this including the arrangement of winches, capstans, anchors, lifeboats and kindred topics.

The final section deals with the operation of ships which, while as stated above, not touching the problems of navigation, is of exceptional interest in view of its treatment of such subjects as loading and stowage of cargoes, ship chartering and marine insurance, notes on these subjects not often being included in books of this nature. A list of authorities quoted and an index containing close upon 2,000 references completes the volume.

It will thus be recognised that this work covers an extremely wide field, and yet, while, of course, no one subject can be treated with any completeness, it will be found to contain much that is essential in the solution of the many problems which arise in the construction and operation of ships. The text contains frequent references to war ships, but it is more particularly to the merchant ship that the book may be said to apply. The volume is tastefully finished with soft leather cover, the pages having gilt edges with rounded corners, and, despite its 740 pages, the book is far from being bulky. To all who are in search of a compact work of reference, whether naval architect, ship draughtsman, marine engineer, or ship's officer, we can recommend this handbook with the utmost confidence.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by Correspondents.*]

SHIPYARD WORKERS AND COMPETITION.

To the Editor of Shipbuilding and Shipping Record.

June 8.

More and more attention is being devoted to the development of artificial means of stimulating the energies of shipyard workers. The subject has attained a "popular" interest, and as a result it is necessary to face the possibility of more harm than good being done in certain directions. Ideas of improving affairs that appeal to the man in the street having little or no knowledge of the particular characteristics of shipyards and shipyard labour problems, are likely to be impracticable or else impolitic.

In the latter category one can most certainly class schemes that propose the setting up of records for individual output, such as has been recently illustrated in the craze for making riveting records. This probably looked a good idea to an outsider having no knowledge of the difficulties and variety of work attaching to ship riveting, but to careful and far-sighted managers, it appeared as an obvious source of trouble, and there is growing evidence that this view was justified. Contests of this description are mischievous, as to cite only one drawback, they undermine the spirit of co-operation, which is so vital a factor in the complex business of shipbuilding.

The timekeeping competition started by the *Daily Mail* is not open to this objection, but serious criticism can be directed at it from other points of view. In the first place, is it sound policy to expend a large sum of money in trying to improve timekeeping, irrespective of output? The point is very debatable and it is well to point out that in very many cases the troubles of the shipyard managements are to be found less in the direction of bad timekeeping than in the fact that hourly output per man is much below pre-war level. The triumphant success of the *Daily Mail* scheme might only result in bigger wage bills, with no corresponding increase in total output, this so far as timeworkers are concerned.

In the second place, with regard to pieceworkers, there is no shadow of doubt but that it is almost impossible with any practicable prize scheme to make a man earn more than he wishes to. By that I mean that the present time attendance of a pieceworker is strictly governed by the amount per hour he is earning. At existing rates a riveter for example can earn several pounds for one day's work and in these circumstances it is extremely difficult, if not altogether impossible, to bribe him to work more than a few days per week. He can get a very substantial return for about half-time attendance and a very big money prize would be necessary to make him alter his present methods.

The *Daily Mail* scheme provides for a prize of £2,500 in each of four shipbuilding districts, and only yards of 300 men or over can compete. The details of the scheme have not yet been published, but in the nature of the case, as the time measurement is dependent on the attendance of the men as a whole, the prize money must be distributed over a very large number of recipients. For instance, presume the prize in one district to be won decisively by one firm. Take a fairly moderate figure as representing the number of workmen, say 1,000. It must be the case that the prize of £2,500 would need to be distributed amongst all or very nearly all these men, and while probably really good timekeepers might receive say as much as £5, the less steady men would get down to say 10s. For these relatively paltry amounts, as wages are nowadays, it is nothing less than absurd to imagine that men are going to put themselves out over a period of many months. Boiled down to the above form this prize scheme assumes more or less its true proportions, and I think the majority of men and managements would vote it "piffling."

When one goes on to consider the committees that will be necessary, the enquiries into time sheets, the elaborate schemes to avoid the penalising of the men who drift from one firm to another, and all the other numerous and petty minor details, it is obvious that a very large amount of time, paper, money and energy will be expended to no useful purpose. In fact, it is doubtful whether harm will not result instead of good.

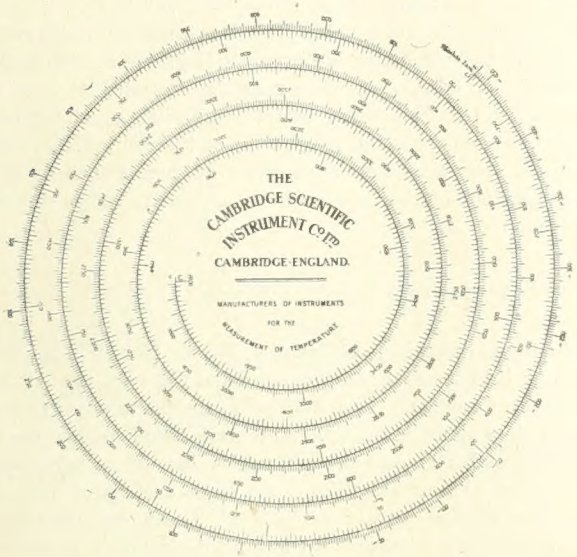
The subject is a difficult one to deal with. Any response to the call for speeding up output must be made through appeals to the men as men, or else by the offer of something really substantial. It seems likely to be of very little use treating them as children to whom one gives a relatively trivial prize for good attendance.

"OUTPUT."

Admiralty and Shop and Yard Committees.—The Trade Unions having members employed in the dockyard and naval establishments in the Portsmouth district have agreed on the main principles of their suggested amendment to the Admiralty scheme for setting up shop and yard committees, and a request has been sent to the Admiralty to convene a conference representing the Trade Councils and Trade Unions having members employed in dockyards and naval establishments in each dockyard town for the purpose of drafting a scheme which will be more favourable to the employees.

TABLE FOR CONVERTING TEMPERATURES.

We have received from the Cambridge Scientific Instrument Company, Ltd., Cambridge, a copy of a table for converting temperatures from Centigrade to Fahrenheit or *vice versa*, which they have recently issued. This conversion chart is in the form of a spiral, and is printed in red and black on a varnished card measuring 12 in. by 14½ in., with a column of useful data on either side of the chart, dealing with temperatures from 273 deg. C. to 2,000 deg. C. The spiral, together with data on standardising points, melting and boiling points, steam temperatures, specific heats, densities of water, thermal conductivities, quenching and tempering bath mixtures, is



printed in two colours on a stiff glazed card. This very useful table will, we are asked to state, be sent free to anyone interested on receipt of six penny stamps to cover postage.

"Shell" Transport and Trading Company, Limited.

INCREASE OF CAPITAL.

In a circular letter to the shareholders the directors state that the paid-up capital of the company now consists of (approximately) £5,000,000 in ordinary shares and £2,000,000 in preference shares, and that the company has in addition a reserve fund of £4,000,000. This reserve fund has been gradually built up as to £3,600,000 from the premiums paid by shareholders on taking up fresh issues of ordinary shares and as to £400,000, by transfers from the company's profit and loss account. In order to make the nominal capital of the company more in accordance with what has been paid by the shareholders the directors recommend :—

(*a*) That the ordinary share capital of the company be increased to £12,000,000 sterling in £1 shares.

(*b*) That a distribution from the reserve fund of approximately £3,000,000 be made against an issue of shares which would give each shareholder a participation. The directors are formulating a scheme on this basis.

This will leave a balance of about £4,000,000 of unissued ordinary capital.

The scheme involves an alteration in the company's articles of association.

At an extraordinary general meeting to be held on June 20 the following resolution will be proposed :—

"That the capital of the company be increased to £15,000,000 by the creation of 5,000,000 additional ordinary shares of £1 each."

THE COMPARISON OF SHIP FORM.

(FROM A CORRESPONDENT.)

Within the last few months a number of papers have been read before technical societies, and a great deal written in the technical press on the commercial efficiency of merchant ships. But is not this heading merely a synonym for efficient ship design ? Everybody recognises that the final test of efficiency is the profit-earning capacity of the capital, and the only way to test a ship is to run it. Even then, judgment of results is comparative, for who can say that this or that ship could not have done better, unless there is provided for analysis a representative assembly of similar ships running under exactly similar conditions. As is well known, this is something very difficult to obtain, and consequently conclusions are more inductive than deductive. It follows that we should be very clear and firm in the use of primary factors, for the final factor of efficiency is correct only to the extent in which we are able to eliminate errors from each step in our assumptions. But there is plain evidence of very considerable vagueness in the employment of these factors. Take the way in which the block coefficient is used ; many of the conclusions reached depend for their accuracy upon the presumption that this coefficient provides a means of comparing one form with another. But this is most certainly incorrect unless the proportions are constant. Much the same may be said with regard to the prismatic coefficient. It is true the prismatic gives a slightly more correct indication of form, as it takes into account the variation of immersed midship section area, but even then it has little real value by itself.

To give anything like a proper quantitative meaning to form, it is essential to take account of length and breadth, or some function of length and breadth, which will provide a measure of the mean slope of the lines. A simple example may help to make this point clear, not superfluous, surely, in face of the statement repeatedly made, that a block coefficient of ·77 should not be exceeded no matter what size a vessel may be. Take a triangular prism as representing the entrance and run of a ship ; its coefficient is ·5. Double the distance to the apex ; the coefficient is still ·5. But the latter is a very much finer ended prism than the former. To get the same slope of line, the breadth would have to be doubled as well as the length, and it will be seen at once how impracticable this is when applied to ship dimensions.

Now, size of ship is represented by four variables : length, breadth, draught and displacement. Considering the strict prismatic form only, we may change any one of these dimensions without altering the others, so long as the displacement coefficient lies between unity and ·5. What must be done in order to indicate their value is to express these variables as a function of one term. Doubtless there are more ways than one of doing this, but the simplest and most practical is the method based on Kirk's block model, given by Mr. Hök in the transactions of the North-East Coast Institution. This formula gives the mean angle of ends when the displacement is reduced to prismatic form.

Let the following symbols indicate the several elements :—

L = Mean immersed length.
B = Breadth moulded at waterline.
d = Draught moulded (mean).
V = Volume of displacement.
M = Midship area.
E = Length of entrance or run.
μ = Midship area coefficient.
β = Block coefficient.
ψ = Prismatic coefficient.
θ = ½ mean angle of ends.

Then, the volume of the block being equal to V and the depth equal to d, we have :—

$$L_1 = \frac{V}{M} = \frac{L\ B\ d\beta}{B\ d\mu} = L\psi$$

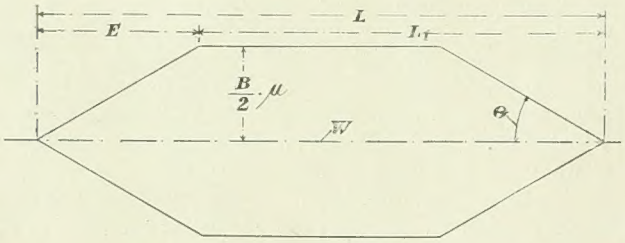
$$\text{and } E = L - L_1 = L(1 - \psi)$$
$$\therefore \tan = \frac{\frac{1}{2} B\mu}{L(1 - \psi)}.$$

It will be observed that B is multiplied by μ so as to express the midship area in rectangular measurement.

For the purpose of comparison, we have here the half mean angle given in degrees. Instead of attempting to compare form by an arbitrary factor like the block coefficient, we have only to acquire the habit of judging from the angle of entrance and run, which is by no means a formidable matter, as the highest and lowest values with few exceptions lie between 24 and 7 degrees, and in the great majority of vessels between 24 and 12 degrees. When it is contrasted with block coefficients ranging between ·6 and ·8 usually carried to three places of decimals, it will be seen, apart from any question of correctness, how much more simple is the latter method. Here we may venture the opinion that if this became the general rule for expressing form, it would go a long way towards removing one of the chief causes of many doubtful arguments and erroneous conclusions. Certainly, the block or prismatic coefficient is necessary in order to determine the displacement. But once the form suitable to any given speed is decided by the appropriate angle, the equation gives the required coefficient :—

$$\psi = 1 - \frac{B\mu}{2 L \tan \theta}.$$

The angle arrived at by the foregoing is, of course, not the actual angle of entrance and run ; it is a comparative mean angle, and it is requisite, therefore, that its components should be so taken as to accord with reduction to prismatic form.



Kirk's Block Model.

The dimensions should, generally speaking, be selected in the manner adopted above, but the length deserves special mention for it will be found to vary pretty widely with individual vessels. Take a twin-screw ship with ordinary L post, the mean ending of the lines is at the inside of the post and the inside of the stem, entailing a deduction from the P.P. length of from 15 to 24 in. But in a similar single-screw ship having the usual aperture, a deduction of anything from 3 to 6 ft. may be required ; whilst a vessel with an immersed cruiser stern may need an addition to the P.P. length of say 8 to 15 ft. The commonsense view, perhaps, is to assume that the length we requi e is bounded by the intersection of the natural run of the curve of areas, with the centre line of the vessel, and very little practice will enable anyone to guess the correction necessary to obtain this effective mean length with quite sufficient accuracy. These are the principal corrections that require to be made, but no doubt others will suggest themselves in particular cases. It must be remembered, however, that what is required is the means of estimating form, as nearly as possible, in true comparative terms.

Let it be assumed that the angle of ends found by this method provides an approximately correct comparison ; the relation between form and speed can now be considererd without which no comparison is of much value. From office records, or published and private data, a selection of known successful ships may be made, and the angle calculated. If now these angles are run on a base of corresponding speed, either by reduction to standard displacement or standard length, or by using speed length ratio, the appropriate angle for any given speed may be obtained at once. Herein lies the great advantage of this method ; it epitomises all the elements in such a way as to be both practicable and in reasonable consonance with our present knowledge of resistance.

It is high time the use of the block coefficient for comparing form was discarded, since it is known to be of little value. One or two of the extremely ingenious papers that have recently been published might have given very useful results, but for the fact that the block coefficient has been loosely used as a means of comparison.

Similarly, with regard to the prismatic coefficient. More than one authority has applied the term " longitudinal " to this coefficient, presumably because it may be taken to represent a mean waterline area coefficient when the volume of displacement is divided by the draught and coefficient of midship area. Yet it must be quite evident that the objections to its use are precisely the same as to the use of the block. For here, also, there must be connoted the ratio of breadth and length before any useful figure is obtained. What it is desired to compare is the mean slope of the curve areas, and to this end, in view of the great diversity of proportions found in ordinary practice, neither the block nor prismatic coefficient alone renders any real assistance.

SIEMENS BROS. & CO., LTD.

At the annual meeting, on Tuesday, Mr. G. Mure Ritchie stated that during 1917 the past policy of concentrating upon the execution of Government orders had been adhered to and the turnover exceeded that of 1916 by about one-third. Automatic telephony had received prominence and all technical difficulties had been surmounted. The company is now installing both large exchanges for public service and smaller private exchanges. The profit of £208,524 showed substantial increase. An interim dividend of 10 per cent. had been paid, but no final distribution could be considered until excess profits duty had been adjusted. The German shareholdings in the company were sold in December, 1917, by the Public Trustee, and the company had issued to the Public Trustee £1,330,000 of 4½ per cent. debentures in settlement of the loan cash capital supplied by the former German shareholdings. Since the board had been reconstituted the directors had given their attention mainly to developing the undertaking into a great national manufacturing asset. They recognised, however, the need for re-arrangement of the capital, and at an early date would enunciate a scheme increasing the share capital to £1,500,000 or more. A substantial portion would be held in reserve, but the proceeds of £400,000, if issued for cash, would be used to retire debentures. If a reconstruction were carried through on the lines proposed, the joint concerns (Siemens Bros. & Co., and Siemens Dynamo Works) would be capitalised at £1,000,000 in shares, £150,000 of 4 per cent. debentures, and about £1,000,000 of 4½ per cent. debentures.

VEREINIGTE ELBESCHIFFAHRTS GESELL. A.G.—The deficit was increased during 1917 by £47,400, and now amounts to £162,000. The year was the worst experienced since the outbreak of war, and amongst the numerous reasons given are the following :—Unfavourable water conditions on the Elbe ; inadequate official control of traffic and disappointing results from the scheme for relieving rail traffic by increasing the water-borne traffic ; continued paralysis of overseas traffic and business derived therefrom ; reduced coal traffic and difficulties in obtaining supplies for the company's own use. The tonnage carried was about half that for 1916, and the ton-kilometres were less by 173,900,000 t.-km. The Dresdner Maschinenfabrik u. Schiffswerft was fully occupied, and paid 7 per cent. dividend. During the year, the Elbeschiffahrts Gesell. disposed favourably of 771 shares in the Deutsch Osterreichische Dampfschiffahrt A.G. The accounts show a working loss of £23,100 (£12,900), making, together with depreciation, a total loss of £47,400 (£36,500). Prospects do not seem to be much better this year, except that working was commenced nearly two months earlier.

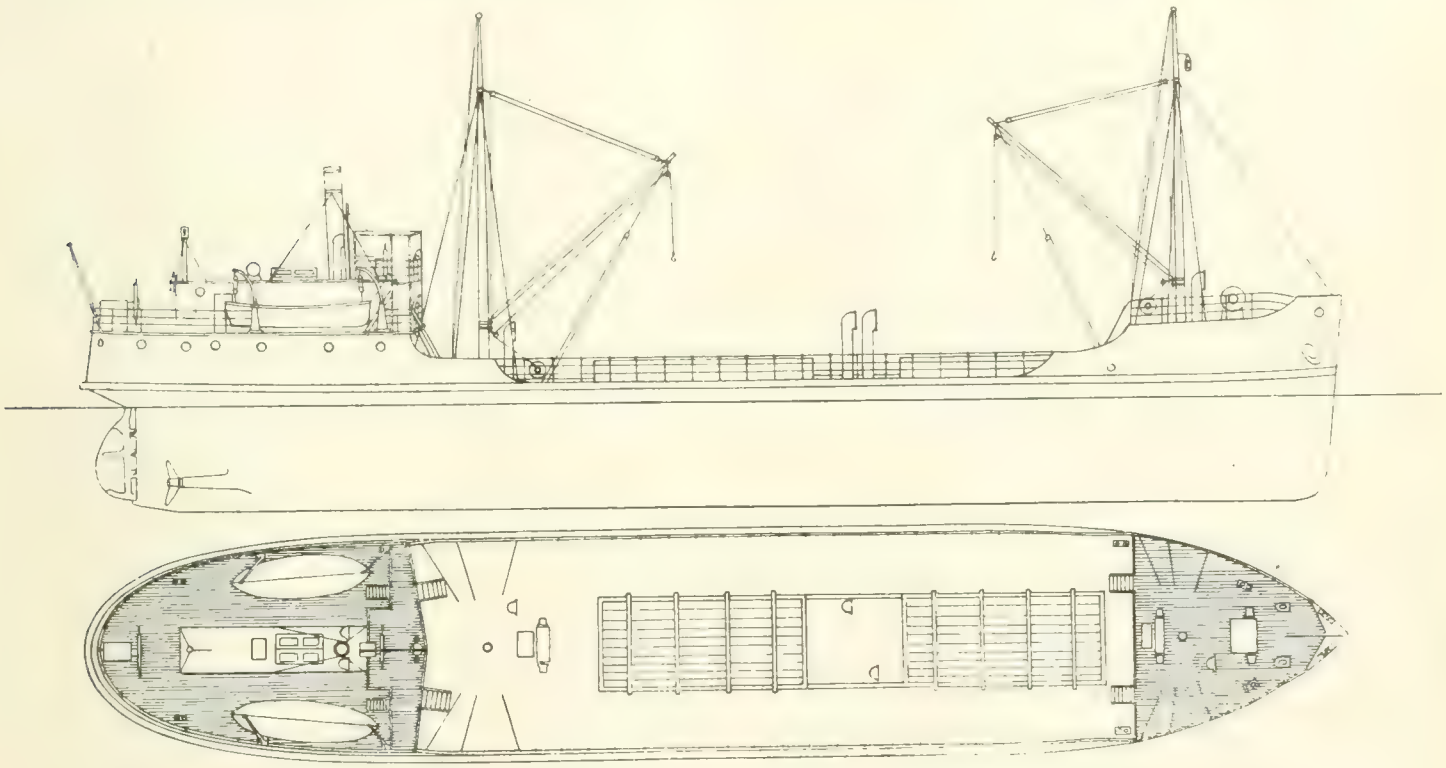
REINFORCED CONCRETE MOTOR SHIP OF 1,000 TONS DEADWEIGHT.

What is described as the first concrete motor ship of 1,000 tons d.w. carrying capacity was launched on May 8 last at Jernbetonskibsbyggeriet's Dockyard, Greaaker, near Fredriksstad, Norway. The builders describe her as the first concrete ship in the world classed for oversea trade, besides being the largest boat of reinforced concrete built in Europe to the present day. She is classed "I.A.I. Betonlœgter Experimental for carrying coal and timber" in the register of the Norwegian Bureau Veritas. The principal dimensions are as follows :—

Length, between perpendiculars...	170 ft. 3 in.
Breadth, excluding fenders	31 ft. 10 in.
Depth	18 ft. 0 in.
Deadweight carrying capacity	1,[illegible] tons.

The hull is subdivided by four watertight bulkheads. There are two cargo holds, fitted with large hatches, 26 ft. long by 13 ft. wide, as shown on the deck plan above. The vessel is of the twin-screw type, being propelled by two Bolinder motors each of 160 h.p., these being situated in the after part of the vessel.

Accommodation is provided for the officers in the poop and for the crew in the forecastle.



Reinforced Concrete Motor Ship, 1,000 tons d.w.

GERMAN VIEWS ON NEUTRAL COMPETITION AFTER THE WAR.

Commencing with a general appreciation of the ever closer "alliance" between Germany and Austria-Hungary during the war, *Hamburger Nachrichten* goes on to say that however important the economic union of the Central Powers may be, it is equally important that these Powers be in a position to establish "commercially friendly (!)" relations with other countries and especially those oversea. This amiable ambition leads to a reiteration of the importance of granting help to German owners under the Reconstruction Act without imposing restrictions on their policy and activities during the transition period. Neutral competition, in particular, seems to be feared. It is pointed out that neutral owners are in a very strong position financially and they are not subject to "bureaucratic control" as regards their *post-bellum* policy. Whilst admitting that a certain amount of neutral tonnage has been requisitioned by the Allies, *Hamburger Nachrichten* considers that it is not safe to assume that this tonnage will be sunk during the war, or that it will not be handed back to its owners promptly after the war.

ANTI-SUBMARINE WARFARE.—A Reuter message from Paris states that M. Cels, Under-Secretary for Marine, last week laid before the Naval Committee of the Chamber a statement regarding the anti-submarine warfare. It was shown that (1) The amount of tonnage destroyed during the first five months of 1918 was only half that destroyed in the corresponding period of 1917. That result had been achieved, notwithstanding the more intense navigation of the seas due to the American effort; (2) Great Britain and America had constructed during April and May a total merchant tonnage much in excess of that destroyed by the Germans; (3) the number of submarines destroyed had continually increased during the last months, twice as many German submarines having been destroyed as the Germans were able to construct in the same period.

RIVER TRIPS FOR WOUNDED SOLDIERS.—During the past three summers the Port of London Authority placed their steamer *Conservator* at the disposal of the British Red Cross Society for the purpose of giving trips on the Thames to wounded men of His Majesty's forces. As the steamer *Conservator* has been sold, the Authority have made arrangements for the launch *His Majesty* to be employed in this service, and the vessel will make trips every week-day, except Saturday, weather permitting. This year, as the result of private contributions to the fund of which Sir Joseph Broodbank, 109, Leadenhall Street, E.C., is treasurer, it has been decided to engage the steamer *Gaiety*, which will make trips on five days a week during the season. It is hoped that the steamers *His Majesty* and *Gaiety* will between them provide restful excursions during the summer for about 15,000 soldiers, and that these outings will prove a very real aid to their restoration to health.

SUPPLY OF PROVISIONS TO BRITISH AND ALLIED VESSELS IN U.K. PORTS.

The Marine Department of the Board of Trade has issued the following notice to shipowners :—

1. The Board of Customs and Excise have made an Order under Section 2 of the Customs (War Powers) Act, 1915, and the Food Controller has made an Order under the Defence of the Realm Regulations, under which the supply of provisions to British and Allied vessels at ports in the United Kingdom is now regulated.

2. The shipment of any provisions, unless and until the "authority" or previous approval of Board of Trade Officers, or Customs Officers, or Officers of the Ministry of Food, has been obtained, is prohibited ; and the delivery or supply of provisions as ships' stores by any person, except under a proper authority, is an offence against the Defence of the Realm Regulations.

3. The procedure when provisions are desired to be supplied for shipment on any British or Allied ship at a port in the United Kingdom is as follows :—

The master, owner, or agent of the vessel should hand to the Board of Trade Surveyor, or other proper officer at the port, a Customs Form S.28 C. in triplicate, fully filled in, and stating all provisions remaining on board, and all the provisions required to be shipped for the voyage on which the ship is about to depart.

The term "Provisions" includes every article (including live-stock) used for food or drink by man, other than water, and any article which ordinarily enters into and is used in the manufacture or preparation of human food (other than flavouring matter and condiments).

Provisions for officers, crew and passengers are all covered by the orders.

The "authority" under which all delivery or supply by a merchant or trader or other person to a ship must be made, is the approval on the Form S.28 C. given by the Board of Trade Surveyor or other proper officer.

4. The above-mentioned system of control does not in any way imply that British and Allied ships should be provisioned at ports in the United Kingdom. It is of greater importance than ever that provisions required by British and Allied vessels should, as has been recommended by the Board of Trade, the Food Controller and the Ministry of Shipping, be purchased at foreign ports, and not at ports in the United Kingdom.

5. All foreign-going British or Allied ships come within the scope of the Customs and Food Controller's Orders when provisions are required for shipment at a port in the United Kingdom.

British or Allied vessels exclusively employed as coasting ships within the meaning of the Customs Consolidation Act, *i.e.*, ships trading or going between places on the coasts of Great Britain and Ireland, or to and from Great Britain or Ireland and the Isle of Man, do not come within the scope of the orders.

British or Allied vessels trading or going between the United Kingdom and Holland (although home trade ships, and not foreign-going ships, under the Merchant Shipping Acts) come within the scope of the orders.

It should be noted that vessels going to the Channel Islands or to northern French ports, *i.e.*, Brest and ports north and east of Brest, come under control now, and the owner, agent or master, must make application on the Form S.28 C. to a Board of Trade Surveyor (or the Collector of Customs or officer in charge, where there is no Board of Trade Surveyor at the port) for any food supplies required for use on board ship.

6. In determining the port where the prospective voyage will end, or to which port the ship should be provisioned (bearing in mind that provisions should be, if possible, taken at ports during the voyage), Board of Trade Surveyors will allow a reasonable margin for the delays which may be experienced in voyages under war conditions.

Ships under Government requisition may be sailing under "sealed orders," or the ports to which the ship is bound may be known. If the former is the case, the local transport officer will give Board of Trade Surveyors information as to the period of time for which provisions should be allowed.

7. The Board of Trade recommend that live-stock should, where possible, be shipped at ports abroad, so as to provide a supply of meat on the homeward voyage, adequate provision being made for the accommodation of the live-stock, and proper sanitary measures taken in the interest of persons on board and of the animals carried. The animals may be retained on board on arrival at a port in the United Kingdom, but neither the animals, nor their carcases or hides may be landed, except with the special permission of the Board of Agriculture and Fisheries.

8. In view of the pressure upon the railways, the conveyance of provisions by rail from port to port in this country should be avoided, as far as practicable, and ships should obtain their provisions at the port at which they are taking them on board. The conveyance of provisions a long distance by rail from port to port is specially objectionable.

9. It is, in general, desirable that vessels should not take a full stock of provisions at the first port of departure when they will call at another port in the United Kingdom. The stores for the voyage should be taken, if practicable, at the final port in the United Kingdom, so as to diminish the risk of loss of valuable food if the vessel is sunk in transit from port to port in this country.

10. This handbill supersedes Handbill No. 394, dated November, 1917, which is hereby cancelled.

TRIAL TRIP OF CONCRETE STEAMSHIP "FAITH."

The San Francisco journals, which have just come to hand, publish enthusiastic accounts of the trial trip of the first large American reinforced concrete ship.

The principal dimensions of this vessel are as follows :—

Length	320 ft.
Breadth	44 ft. 6 in.
Depth	30 ft.
Draught	22 ft. 6 in.
Deadweight capacity	3,950 tons.
Speed	10 knots.

This vessel, which has been christened the *Faith*, has been built by the San Francisco Shipbuilding Company, and is propelled by a set of triple-expansion engines capable of developing 1,600 h.p., the boiler pressure being 165 lb. per sq. in. The engines and boilers are situated aft, but the vessel is navigated from a bridge situated over the officers' cabins and chart house amidships.

From all accounts the trial trips proved successful in every way. The average speed over the measured mile worked out at 10⅓ knots, despite the fact that it was only found possible to maintain a steam pressure of 140 lb. per sq. in., and on the four hours full speed trial the vessel covered a distance of "nearly 40 miles." The *Faith* is fitted with the Herzog electric and steam steering gear, the tiller being worked by a steam engine which is controlled electrically from the bridge, and the reports speak with enthusiasm of the behaviour of the vessel on the turning trials. Mention is also made of the almost entire lack of vibration, which was noticeable in all parts of the vessel, save right aft near the engines and propeller.

The trials were watched officially by representatives of the United States Government and of the Emergency Steel Corporation, and whilst no official expression of opinion was given, it is stated that their private and personal opinion was one of gratification over the performance of the steamer.

It has already been announced that the *Faith* has completed her first sea voyage of 850 miles between San Francisco and Seattle, and her subsequent behaviour in actual sea service will be watched with interest.

TRANSHIPMENT OF EXPLOSIVES AND TONNAGE RATES IN SOUTH AUSTRALIA.

The following regulations were made by the Governor of South Australia in Council on February 7 last :—

TRANSHIPMENT OF EXPLOSIVES.

I. The master of any ship having on board explosives exceeding in quantity twenty-five (25) pounds in weight of gunpowder, or five (5) pounds in weight of any other explosive, which ship is within one nautical league of the shore in the hundred of Port Adelaide, shall not ship, tranship, or discharge any explosive or any other cargo from the ship until he has obtained from the Harbours Board a permit to ship, tranship or discharge such explosive or other cargo.

No such shipment, transhipment, or discharge shall take place except in the presence of one or more officers or other employees of the Board as deemed expedient by the Superintendent of Explosives, and the master of the ship shall pay a fee of £1 1s. for every period of eight hours or portion of any such period for the services of each officer or employee who so attends.

Penalty.—Not less than five (5) pounds nor more than fifty (50) pounds.

2. Where in any part of the Explosives Regulations, 1900, the words "Magazine Keeper" appear, the words "Superintendent of Explosives" are hereby substituted in lieu thereof, and the said regulations shall be read and construed as if such words "Superintendent of Explosives" were originally inserted therein.

Regulation No. 78 of the Explosives Regulations, 1900, and the regulation respecting the shipment, transhipment, and discharge of explosives, made by the Marine Board on July 23, 1912, are hereby repealed.

TONNAGE RATES.

Notwithstanding anything contained in any regulation heretofore made under the Harbours Act, 1913, berthing or tonnage rates shall be chargeable and paid on the gross register tonnage of vessels : Provided that where no tonnage is registered, the Board, by its officers, may measure and record the tonnage of any such vessel, and the measurement so ascertained shall be deemed to be the tonnage for the purpose of calculating the tonnage rates payable by such vessel.

Tonnage rates as under shall be chargeable and paid by every vessel not otherwise provided for herein berthing directly or indirectly at any wharf under the control of the Board :—

For each ton of the gross register tonnage of the vessel or of its tonnage measured and recorded as provided by the above regulation. No. 1	..d. for the first period of 24 hours or part thereof, and ..d. for each additional period of six hours or part thereof.

Provided that :—

I. Vessels trading solely within the Commonwealth shall pay one-half only of the above rates, subject to a minimum charge of two shillings.

II. Tonnage rates for outports other than Port Pirie shall be chargeable and paid by every steamer trading only within the State, as under :—

	Per visit. £ s. d.
Not exceeding 100 tons gross register...	0 5 0
Over 100 tons and not exceeding 200 tons	0 7 6
,, 200 tons ,, ,, ,, 300 tons	0 10 0
,, 300 tons ,, ,, ,, 400 tons	0 12 6
And for every additional ton above 400 tons	0 0 0½

One payment at the above rates shall entitle a steamer regularly engaged in the coasting trade of the State to make six visits to outport wharves or jetties (except Port Pirie) in any one week's run or one round trip, whichever shall be the longer period. One-sixth of the above rates shall be charged for each additional visit above six made in such week's run or round trip.

Tonnage rates for coasting steamers may be estimated and paid in advance for any term, and any underpayment or overpayment adjusted at the close of each of the quarters ending March 31, June 30, September 30, and December 31 in every year.

The term "steamer" shall also be deemed to include all vessels (except sailing vessels) propelled by mechanical power other than steam.

III. Tonnage rates for outports other than Port Pirie shall be chargeable and paid by every sailing vessel engaged in the coasting trade of the State :—½d. per ton per trip ; minimum charge, 2s.

A quarterly permit entitling a coaster (sailing) to the use of all outport jetties (except Port Pirie) during the ensuing three months may be granted from the first day of January, April, July, or October of any year on payment of rates calculated for 10 trips or visits.

IV. Tonnage rates as under shall be chargeable and paid by every vessel while engaged in trading solely within the limits of any one port and berthing directly or indirectly at any wharf under the control of the Board :—

	Per week or part thereof. £ s. d.
Not exceeding 15 tons gross register tonnage of the vessel or of its tonnage measured and recorded as heretofore provided	0 2 0
Over 15 tons and not more than 50 tons	0 3 6
,, 50 tons ,, ,, ,, ,, 100 tons	0 5 0
,, 100 tons ,, ,, ,, ,, 200 tons	0 7 6
And for every additional ton above 200 tons	0 0 0¼

A quarterly permit may be granted from the first day of January, April, July, or October in any year for any such vessel on payment of the following rates :—

	Per quarter. £ s. d.
Not exceeding 15 tons gross register tonnage of the vessel or of its tonnage measured and recorded as heretofore provided	1 15 0
Over 15 tons and not more than 50 tons	1 5 0
,, 50 tons ,, ,, ,, ,, 100 tons .	2 0 0
,, 100 tons ,, ,, ,, ,, 200 tons .. .	0 0
And for every additional ton above 200 tons	0 2

Every such vessel usually employed within the limits of any one port, laid up out of commission, and moored to or alongside any wharf, shall pay one-half of the rates specified above.

V. Coasting or interstate vessels out of commission and moored to or alongside any wharf, shall be charged at the following rates :—

	Per week or part thereof. £ s d.
Not exceeding 60 tons gross register tonnage of the vessel or of its tonnage measured and recorded as heretofore provided	0 . .
Over 60 tons and not more than 100 tons	0 10 0
,, 100 tons ,, ,, . ,, 250 tons	0 15 0
,, 250 tons ,, ,, ,, ,, 400 tons	1 0 0
And for every additional ton above 400 tons	0 0 1

VI. The Board may assign any area or areas within any port wherein any vessel may be secured on its own moorings on payment of one-fourth of the tonnage rates specified in proviso IV or V, according to the nature of the case.

VII. Any vessel lying in tier outside a vessel moored to or alongside any wharf shall pay the rates specified in this regulation.

VIII. Vessels in distress or undergoing repairs, on application, may be charged at such lesser rates while berthing at any wharf as the Board, at its option, may direct.

TONNAGE RATES AT RIVER MURRAY PORTS.

Notwithstanding the proviso in the regulation No. 1 made on the first day of October, 1915, tonnage rates, as under, shall be chargeable and paid by every vessel berthing directly or indirectly at any wharf on the River Murray under the control of the Board :—

	Per visit. £ s. d.
Not exceeding 15 tons gross register	0 2 6
Over 15 tons and not more than 150 tons	0 5 0
,, 150 tons ,, ,, ,, ,, 250 tons	0 7 6
,, 250 tons ,, ,, ,, ,, 400 tons	0 10 0
And for every additional ton above 400 tons...	0 0 0½

One payment at the above rates shall entitle vessels regularly engaged in the River Murray trade to make six visits to River Murray wharves under the control of the Board in any one week.

One-sixth of the above rates shall be charged for each additional visit above six made in such week's run.

Any vessels lying in tier outside a vessel moored to or alongside any wharf shall pay the rates specified in this regulation.

Regulations Nos. 80, 82, and 93 of the regulations for the management and control of Government wharves and jetties, dated August 26, 1915, are hereby repealed.

PROPOSED ESTABLISHMENT OF FREE PORTS IN THE UNITED STATES.

In the *Board of Trade Journal* it is stated that for some years past consideration has been given to the question of establishing free ports in the United States. In 1913 the Merchants' Association of New York investigated the matter, and in 1914 produced a report strongly advocating the establishment of a free port zone at that city. In San Francisco there has been an equally strong movement in favour of the creation of a free port there, and a report on the subject has been drawn up for the United States Tariff Commission. This latter report, however, dwells rather upon the advantages which would, it is thought, accrue to the city from the removal of Customs dues, than on the larger and more important questions of the extent to which foreign trade would be assisted and increased, and whether the cost of the scheme would be justified by results.

In the report for 1916-17, by the United States Secretary of Commerce, the establishment of such ports at strategic points along the American coast was advocated, as a potent factor in maintaining and extending foreign trade. The United States Tariff Commission have also considered the question of the establishment of free zones in United States ports as an alternative to the administration of bonded warehouses and the system of granting drawbacks in connection with the re-export of foreign goods. A report by this latter body stated that whilst there were certain obvious advantages in the "free zone port" system, a careful survey would be required to be made before it would be safe to assume that the plan would be successful or workable in the United States. In this connection the Commission instituted investigations in three large important cities, situated, respectively, on the Atlantic, the Gulf and the Pacific coasts, the San Francisco Report referred to above being, apparently, the outcome of one of the investigations.

It appears also that the New York Chamber of Commerce has given some attention to the matter, and resolutions were passed early in January by this body, favouring the establishment of a free port at New York.

A Bill for the establishment of "Free Ports" has now been introduced into the Senate. It is proposed to authorise the Secretary of Commerce to grant to corporations the privilege of establishing, operating and maintaining free zones in or adjacent to ports of entry in the United States, except Alaska and the Panama Canal zone. Under this Bill vessels or other carriers might land, load, and unload free from all Customs supervision and dues; and merchandise might with freedom be brought into or landed, and handled and exported. The Bill proposes that the territory embraced in a free zone should, so far as Customs duties and regulations are concerned, be exempt from the Customs Laws of the United States.

[A copy of the Bill, and also a copy of the San Francisco Report, may be consulted by firms interested at the Department of Overseas Trade (Development and Intelligence).]

£2,000 for the Sea Services.—The General Secretary of the Navy League has received from the President of the Navy League of Canada the fourth contribution of £2,000 for the benefit of the dependants of officers and men of the Navy and Mercantile Marine and all wounded and incapacitated men of both these services.

THE AUXILIARY MACHINERY OF THE SS. "BINTANG."

In *Shipbuilding and Shipping Record*, October 11, 1917, we published the drawings and particulars of the ss. *Bintang*, a general cargo vessel of 9,575 tons d.w., which had recently been completed by the Fijenoord Shipbuilding & Engineering Works, Rotterdam, for the Netherland Steamship Company, of Amsterdam; and in a brief description of the propelling machinery of this vessel mention was made of the fact that many of the auxiliaries were of more than usual interest. Thus, there is no air pump fitted to the main condenser, the air being drawn off by one of the two Westinghouse-Leblanc ejectors, while one of the two Woodeson's feed pumps serve alternatively as the wet air pump, and delivers the water into the oil separator, from which it is brought into the Weir's direct contact heater by means of a turbine-driven low-pressure pump, while a high-pressure pump coupled on the same shaft delivers the water from the heater to the boilers.

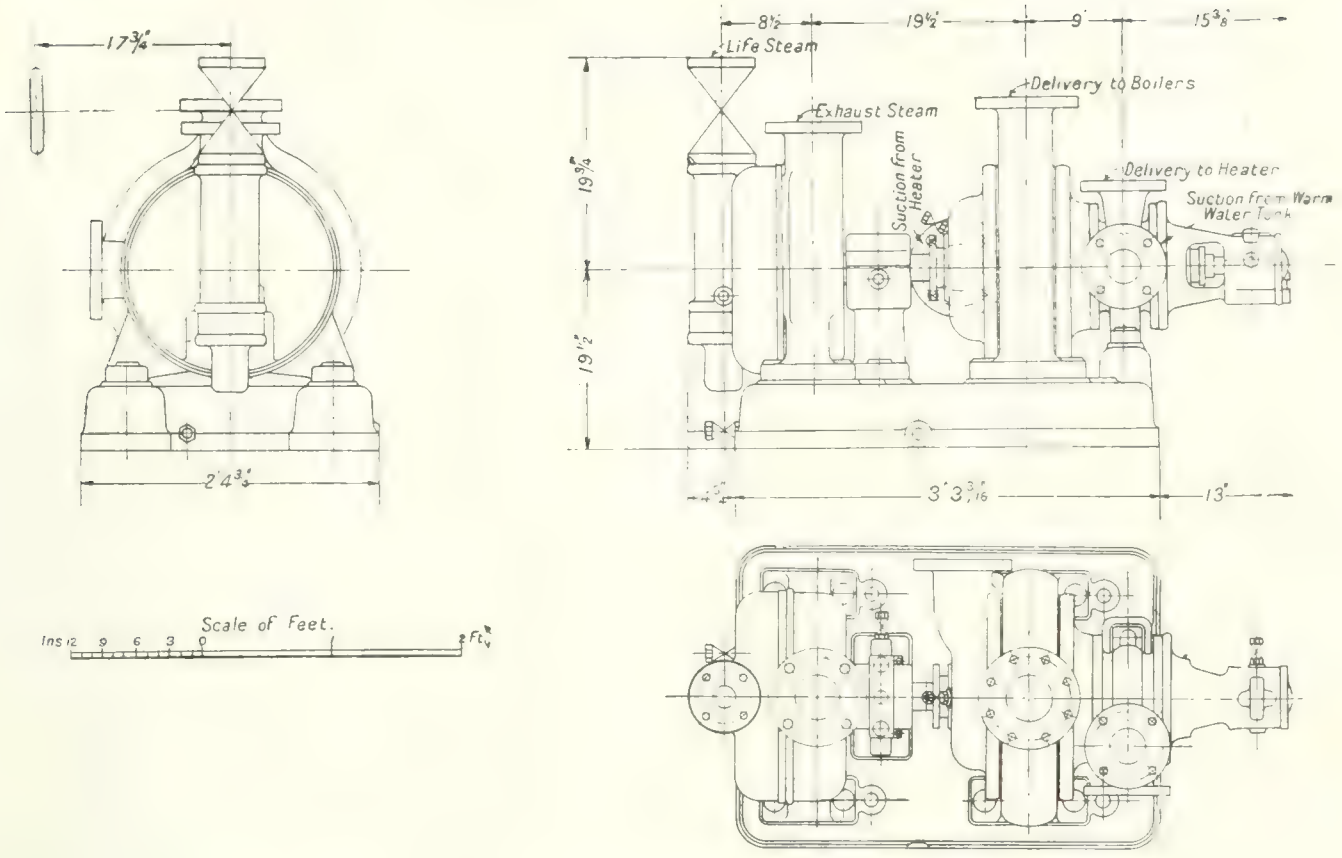
This turbine-driven feed pump was built in the engine shops of the Fijenoord Shipbuilding & Engineering Works, and by the courtesy of the builders we are enabled this week to give a fuller description of this interesting machine. The general arrangement is shown on page 657, and it will be seen from the drawing that the low-pressure and the high-pressure pump are mounted on the same shaft and direct-coupled to a small steam turbine. The capacity of each pump is 6,600 gallons per minute, and the speed of rotation is 4,500 r.p.m., the turbine developing 40 h.p. The turbine is provided with a regulating device acting by the water pressure of the high-pressure pump whereby the steam and water pressures are always in equilibrium. The steam supply is shut off by an emergency regulator before the number of revolutions per minute of the turbine exceeds the safe maximum. The bearings are lined with white metal and specially cooled, and as the water is brought on both sides of the impellers there is no axial pressure, and therefore no thrust collars or rings are required.

The overall dimensions are inserted on the drawing, from which it will be noticed that the pump measures only 4 ft. 6 in. by 2 ft. 3 in. overall.

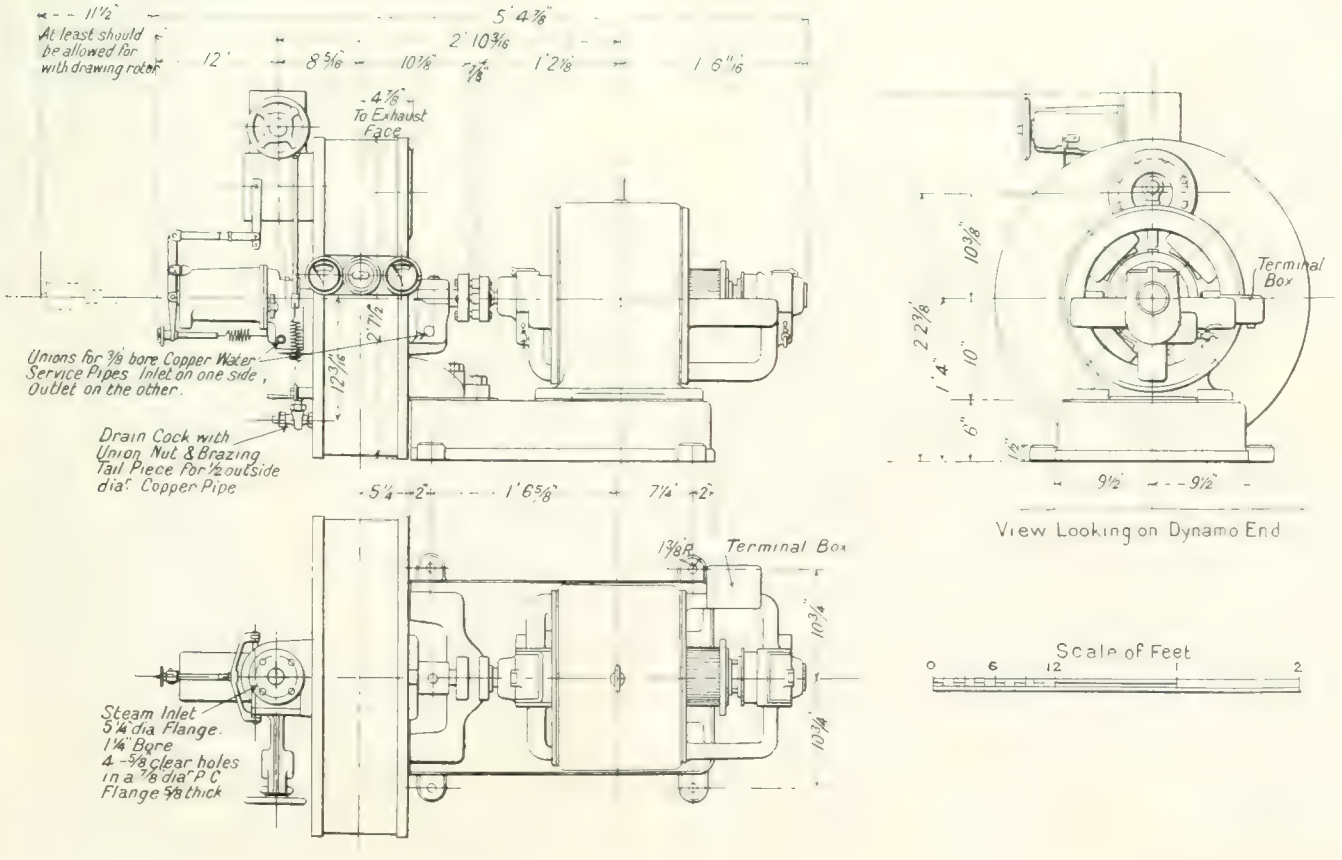
Another interesting feature of the auxiliary machinery of the ss. *Bintang* is the electric lighting set. The generator is of 15 kilowatts capacity and supplies current both for lighting and for the wireless installation. This generator is driven by means of a small turbine, the rotor of which consists of a single wheel compounded for velocity. The casing is divided vertically so that the rotor can be withdrawn without disturbing the back casing or the exhaust pipe. The turbine is made by Belliss & Morcom, Ltd., Birmingham, who have supplied quite a number of these machines to the ships building for the Netherland Steamship Company and also to ships building in this country. Numerous turbines of the same size have also been supplied for driving condensing plant pumps.

The turbine is adapted for running with highly superheated steam, since the only parts coming in contact with the live hot steam are the stop valve and the governor valve, which are both made of suitable metal. Also they are adapted to give their full output, either when running as condensing or as non-condensing engines. The bearings are ring lubricated, and are small but of adequate dimensions, with the result that they may be depended on to run cool. The glands are carbon packed, a small steam seal being provided for use when the turbine exhausts into the condenser.

The stop valve is a combination stop and emergency valve, the latter function being controlled either by hand or automatically when the speed of the turbine exceeds a certain limit. The governor valve is of the usual Belliss & Morcom reciprocating engine type, the valve being worked directly by a lever system from a very powerful governor fitted on the end of the shaft.

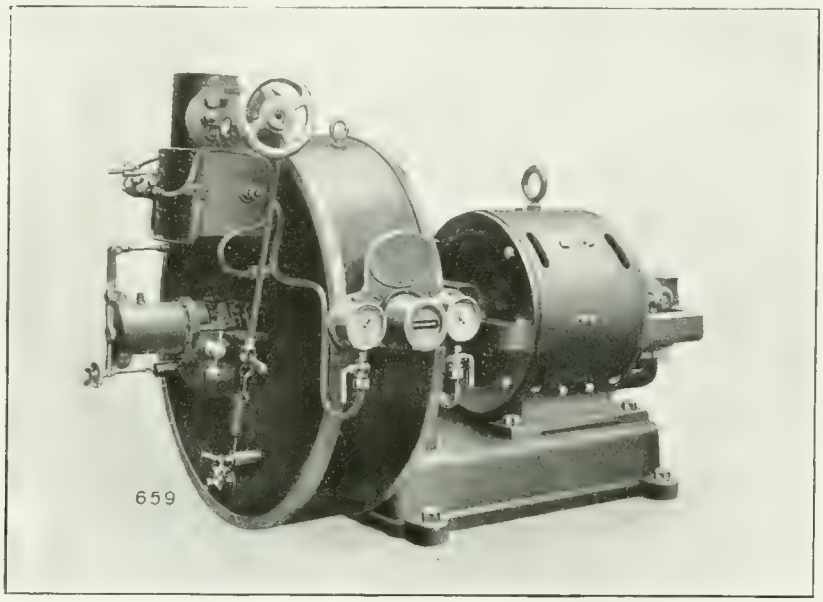


SS. "Bintang." General Arrangement of Turbine-Driven Boiler Feed Pump.



SS. "Bintang." General Arrangement of Turbine-Driven Ship Lighting Generator.

The generators are by Greenwood & Batley, Ltd., Leeds, and are of their steel-clad four-pole type, fitted with commutating poles, so as to give practically sparkless commutation at all loads with fixed brush position. Current is generated at a pressure of 115 volts, the speed of the dynamo being 3,000 r.p.m.



Ship Lighting Turbo Generator, 15 k.w. at 115 Volts.

The drawing reproduced on page 657 shows the general dimensions and the arrangement of the unit, while the photograph reproduced above gives an excellent idea of the neat and compact arrangement of this interesting machine.

The other auxiliaries of the ss. *Bintang* include an ammonia refrigerating machine, forced draught fan, auxiliary condenser with circulating pump, ballast, and fresh water pumps, oil fuel pumps, and a hydraulic self-tipping ash hoist.

SHIPYARD APPLIANCES.

A FLOODLIGHT PROJECTOR USING INCANDESCENT ELECTRIC LAMPS.

The British Thomson-Houston Company's Illuminating Engineering Department has designed for the English market an improved form of light projector, employing the standard types of half-watt or gas-filled lamps for use in what is known as "floodlighting" work. This new floodlight projector is described in the Britisl Thomson-Houston Price List, No. 10,482, which has just reached us, and which gives full detailed description of the apparatus and its field of application and methods of use.

With such a projector, operating with all the simplicity of the incandescent electric lamp, a flood of light can be thrown over any area such as a shipyard, portion of a shop or upon any surface such as the front of a building or the side of a ship under construction in the docks. There are very many other practical applications for such projectors—they are particularly useful for night construction work, where contractors are engaged in rushing repairs or construction work on ships, &c. For such work this projector, on account of its adaptability, convenience of mounting and employment, and its ability to illuminate objects at a considerable distance, is of special value to engineers and contractors. Floodlighting may also be employed for night work on salvage jobs. Floodlight applications have been made on an extended scale in the United States and Canada since the introduction of the half-watt type incandescent lamps, and while the military conditions incident to the war have restricted many applications of such lighting in Great Britain, there still exists a considerable field for their use even under war conditions.

As shown in the illustration below, the projector consists of a body or casing and a supporting stand or bracket. The projector is suitable for standard patterns of half-watt type lamps, in 300, 500 and 1,000 watt sizes, or can be, if desired, supplied to take even smaller sizes of these lamps. The lampholder is so supported as to permit of an easy independent adjustment laterally, transversely and vertically, so that the electric lamp can be accurately focused in the reflector. When the lamp is correctly adjusted in focus, a powerful beam, giving a divergence of from 5 to 15 deg. on each side of the centre, is obtained with a maximum candle-power of 50 to 100 times that of the lamp employed.

The reflector is a silver-plated mirror of parabolic form, copper backed, and covered with a special enamel stoved on. It is secured to the back of the projector by means of steel springs, affording a resilient support and minimising any danger of breakage.

These floodlight projectors will be found to be a most useful equipment in almost all industrial establishments, particularly those having work covering large areas, as the lights can be conveniently mounted and employed to illuminate objects with a close approach to daylight conditions. Operating as they do with standard half-watt type lamps, they have all the simplicity, adaptability and convenience of the ordinary electric incandescent lamp, as there are no moving parts of mechanism in the lamp proper and the only adjustment is simply the mechanical focusing of the lamp through the movement of the lampholder.

The Floodlight Projector.

Copies of this new list have been sent to all holders of the Handbook Binder issued by the Lamp and Wiring Supplies Department of the British Thomson-Houston Company, and extra copies may be obtained on application to the Publication Department of the company at Mazda House, 77, Upper Thames Street, London, E.C.

GENERAL NEWS SECTION.

PERSONAL.

THE ORDER OF THE BRITISH EMPIRE.

The following are among the promotions in, and appointments to, the Most Excellent Order of the British Empire, for services in connection with the war :—

KNIGHTS COMMANDERS.

Mr. John Esplen, Senior Partner Esplen, Sons & Swainston, Ltd., Naval Architects.

Lieutenant-Colonel Albert George Hadcock, T.D., F.R.S., Managing Director, Sir W. G. Armstrong, Whitworth & Co., Ltd.

Mr. Osborn George Holmden, J.P., Director of the Inter-Allied Chartering Executive.

Mr. Joseph Lowrey, Secretary, London Salvage Association.

Admiral Sir Richard Henry Peirse, K.C.B., M.V.O., Naval Member of the Central Committee of the Board of Invention and Research.

Mr. Allan McGregor Smith, Chairman of the Management Committee of the Engineering Employers' Federation.

Mr. John Edward Thornycroft, Managing Director, J. I. Thornycroft & Co., Ltd.

COMMANDERS.

Mr. Charles Coupar Barrie, Commercial Adviser to Naval Assistant, Ministry of Shipping.

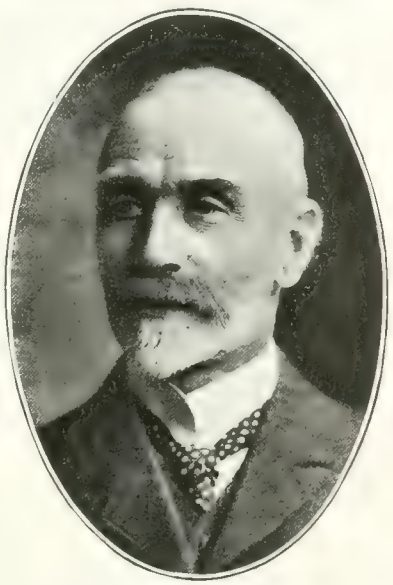
Mr. W. Brown, J.P., Chairman of Directors, W. Simons & Co., Ltd.

Mr. Alfred Chandler, General Manager and Secretary, Mersey Docks and Harbour Board, Liverpool.

Mr. William Cocks, Managing Director, Cardiff Channel Dry Docks & Pontoon Co., Ltd.

Mr. John Craig, Managing Director, David Colville & Sons, Ltd.

Sir John E. Thornycroft, K.B.E.,
Managing Director, J. I. Thornycroft & Co., Ltd.



Mr. W. Brown, C.B.E.,
Chairman of William Simons & Co., Ltd., Renfrew.

Mr. Thomas Dally, Superintendent of Naval Construction, Admiralty.

Captain Maurice Edward Denny, late Deputy Director of Designs, Department of the Controller-General for Merchant Shipbuilding, Admiralty, member of the firm of Wm. Denny & Bros., Ltd., Dumbarton.

Mr. Albert Hunt, Joint Manager, Union Castle Mail Steamship Company, Ltd.,

Engineer-Captain William Henry James, R.N., Engineering Manager, Devonport Dockyard.

Rear-Admiral Edmund Purefoy Ellis Jervoise, Captain of Royal Naval College, Greenwich; Manager of the Seamen's Dreadnought Hospital.

Photo. *[G. B. Black.*
Sir John Esplen, K.B.E.,
Senior Partner, Esplen, Sons & Swainston, Ltd.

Mr. Wm. Cocks, C.B.E.,
Managing Director, Cardiff Channel Dry Docks & Pontoon Co., Ltd.

Mr. Edward Lewis Attwood, Chief Constructor, Department of Director of Naval Construction, Admiralty.

Captain James Carol Badger, Master, Mercantile Marine.

Mr. David Barry, General Manager, British & Irish Steam Packet Company, Ltd.

Mr. William Bates, of the firm of Messrs. Rea, Coaling agents.

Mr. Charles Russell Lang, Joint Managing Director, G. & J. Weir, Ltd., Cathcart.

Mr. Holberry Mensforth, General Works Manager, British Westinghouse Electric & Manufacturing Co., Ltd.; Member, Manchester Co-operative Munitions Board of Management, and Member Manchester National Shell Factory Board of Management.

Lieut.-Colonel John Mitchell Moncrieff, R.E., late Director of Engineering Work, Department of the Controller-General for Merchant Shipbuilding, Admiralty.

Mr. Thomas Emerson Ruddock, Head of Norwegian Section, Ministry of Shipping.

Mr. George Scoby Smith, J.P., Commercial Manager, Bolckow, Vaughan & Co., Ltd.

Mr. William Bruce Thompson, Managing Director, Caledon Shipbuilding and Engineering Company.

Mr. Robert Williamson, J.P., Managing Director, Mount-tuart Dry Docks, Ltd, Cardiff.

Engineer-Commander William Henry Wood, R.N., Director and Engineering Manager, John Brown & Co.

OFFICERS.

Commander Albert Edward Acheson, R.N., Divisional Naval Transport Officer, Manchester.

Major John Camille Akerman, Assistant Director of Propaganda and Housing, Department of the Controller-General for Merchant Shipbuilding, Admiralty.

Mr. Thomas Blacklock, Chief Engineer, Mercantile Marine.

Mr. Harry Blake, Senior Partner, Hogg & Robinson, Admiralty Shipping Agents.

Mr. Herbert John George Blandford, Warship Production, Superintendent, Department of Director of Warship Production, Admiralty.

Commander James Bloomfield, R.N.V.R., Auxiliary Shipbuilding Department, Admiralty.

Mr. John Robert Bond, Assistant Director, Shipyard Labour Department, Admiralty.

Mr. Walter Borrie, Managing Director, Blair & Co., Ltd., Stockton-on-Tees.

Captain Edward Walrond de Wells Bruce, Master of the Hospital Ship *Plassy*.

Mr. William Joseph Willett Bruce, Superintending Engineer, White Star Line.

Mr. John Norman Brunton, Head of Merchant Tonnage Section, Director of Statistics Department, Admiralty. Before going to the Admiralty Mr. Brunton was manager of Hall Bros., shipowners, Newcastle-on-Tyne.

Captain Edwin Galton Cannons, Master, Mercantile Marine.

Mr. Harold Richards Chaldecott, Elswick Shipbuilding Yard, Newcastle.

Mr. Rowland Hugh Charlton, Chairman and Managing Director, Charlton & Co., Engineers, Grimsby.

Commander Gerard Knipe Gandy, R.N.R., R.D., Master, Mercantile Marine.

Captain Thomas Frank Gates, Commodore Master, Mercantile Marine.

Captain John George, Master, Mercantile Marine.

Mr. Herbert Mends Gibson, M.B.E., Chief Superintendent, Manchester Ship Canal Company.

Mr. John MacAuslan Gilchrist, Manager, Repairing Works, Barclay, Curle & Co., Ltd., Whiteinch.

Lieutenant-Commander Nigel de Grey, R.N.V.R., Naval Intelligence Division, Admiralty.

Captain Charles Frederick Hancock, Master, Mercantile Marine.

Lieutenant-Commander George Henry Harris, R.N.R., Master, Mercantile Marine.

Colonel Robert Blake Worsley Holmes, Chief Mechanical Engineer, Inland Waterways and Docks, Richborough.

The Reverend Charles Plomer Hopkins, Honorary Treasurer of the Sailors' and Firemen's Union.

Captain Walter Ernest Hutchinson, R.N.R., Marine Superintendent, British India Steam Navigation Company, Ltd.

Mr. John Iron, Commercial Harbour Master, Dover.

Mr. Robert Stewart Johnson, Managing Director, Workman, Clark, & Co., Ltd., Belfast.

Captain John Limrick Keene, Master, Mercantile Marine.

Mr. Robert Leslie, O.B.E.,
Superintending Engineer, P. & O. Line.

Mr. J. N. Brunton, O.B.E.,
Manager, Hall Bros., Newcastle-on-Tyne.

Mr. Leonard Peskett, O.B.E.,
Naval Architect, Cunard Line.

Captain Frank Henry Claret, Master, Mercantile Marine.

Captain Frederick Ourry Clark, Master, Mercantile Marine.

Major George Ernest Cockburn, Assistant Director of Engineering Work, Department of the Controller-General for Merchant Shipbuilding, Admiralty.

Colonel Henry Concannon, T.D., Director, White Star Line.

Captain Raymond Henry Coope, Master, Mercantile Marine.

Mr. James Cosgrove, Chief Engineer, Mercantile Marine.

Mr. Richard Andrew Crafter, Harbour Master, Mersey Docks and Harbour Board, Liverpool.

Mr. George Crammond Croal, Chief Engineer, Mercantile Marine.

Mr. Robinson Irving Dodsworth, Head of Steamship Management Department, Furness, Withy & Co., Ltd., London.

Captain Herbert Edward Dolton, Master, Mercantile Marine.

Mr. Thomas Fender, Works Superintendent, Vickers Ltd., Barrow.

Lieutenant-Commander William Finch, R.N.R., Master, Mercantile Marine.

Mr. Arthur Percy Morris Fleming, Engineer, British Westinghouse Company ; Honorary Secretary, Lancashire Anti-Submarine Committee.

Mr. Frank Purser Fletcher, Electrical Engineer, Department of Director of Electrical Engineering, Admiralty.

Lieutenant-Commander John Vernon Foster, R.N.R., Marine Superintendent, Canadian Pacific Ocean Services, Ltd.

Mrs. Beatrice Fry, The Training Ship *Mercury*.

Captain Angus Keith, Master, Mercantile Marine.

Commander Frederick William Kershaw, R.N.R., Harbour Master, Gravesend.

Mr. James Scott Kincaid, Managing Director of Kincaid & Co., Greenock.

Engineer-Commander Joseph John Kirwin, R.N., Engineer Inspector, Engineer-in-Chief's Department, Admiralty.

Temporary (Acting) Engineer-Lieutenant-Commander Robert G. Knox, R.N., Superintending Officer, Syra Dockyard.

Mr. Hugh Laing, Director, Sir James Laing & Co., Ltd., Sunderland.

Mr. Francis Lawrence Lane, Managing Director, The Leeds Forge Company, Ltd.

Mr. William Langridge, Partner, Gray, Dawes & Co.

Chief Engineer Claude Charles Lapsley, R.N.R., Chief Engineer, Mercantile Marine.

Acting Commander Henry Layland, R.N.R., Commander of Dockyard, Dover.

Captain George Edward Lea, Master, Mercantile Marine.

Mr. Robert Leslie, R.N.R., Superintending Engineer, P. &. O. Line.

Captain Thomas Henry Carlton Levick, Director, Harris & Dixon, Ltd., Steamship Owners.

Mr. David Edenfield McCracken, Chief Traffic Manager, Mersey Docks and Harbour Board, Liverpool.

Captain John McMath, Master, Mercantile Marine.
Lieutenant William Smith Main, R.N.R., Master, Mercantile Marine.
Major John Lynn Marr, Assistant Director, Department of Controller-General for Merchant Shipbuilding, Admiralty.
Mr. George Stephen Maskall, Assistant Dock and Warehouse Manager, Port of London Authority.
Major James Ernest Muir, Chief Inspector of Auxiliary Shipbuilding, Scotland.
Mr. John Muirhead, General Manager, Russell & Co., Port Glasgow.
Captain William John Charles Nash, Master, Mercantile Marine.
Commander Richard John Noal, R.N.R., Marine Superintendent, Shaw, Savill & Albion Company, Ltd.
Commander Reginald Charles Lloyd Owen, R.N., Coaling Officer to Grand Fleet and Auxiliary Patrol.
Mr. Leonard Peskett, Naval Architect, Cunard Steamship Company, Ltd.
Mr. Robert Pollok, Shipyard Manager, Vickers, Ltd., Barrow.
Mr. William Frank Purdy, Joint Secretary of the Shipconstructors' and Shipwrights' Association.
Mr. Arthur Temple Quelch, The Manganese Bronze & Brass Company, Ltd.
Captain James Robert Rae, Master, Mercantile Marine.
Mr. Robert Reid, Senior Engineer, Mercantile Marine.
Mr. Harold Bulkeley Reynolds, Esq., Manager of Plant and Machinery and Design of Plant Installation, Babcock & Wilcox, Ltd.
Acting Commander Sidney Sherlock Richardson, R.N.R., R.D., Officer in Charge of Defensive Armament, Trade Division, Admiralty.
Mr. William Roberts, Liverpool Manager, Fredk. Leyland & Co.
Mr. James Alexander Robertson, President, Fleetwood Fishing Vessel Owners' Association.
Mr. John Rogers, Assistant Director of Materials and Priority, Admiralty.
Acting Commander Henry John Montague Rundle, R.N.
Commander Carlton Collingwood Sherman, R.N., Deputy Director of Torpedo and Mines Production, Admiralty.
Mr. Charles William Shute, Naval Architect, Union Castle Line.
Mr. George Arthur Sketelbery, Manager, Blyth Shipbuilding & Dry Docks Company.
Lieutenant-Commander William Peter Thompson, R.N.R., Marine Superintendent, Elder, Dempster & Co.
Captain Frederick William Tubb, Marine Superintendent, Atlantic Transport Line.
Mr. Henry Watson, Director, Tredegar Dry Dock Company.
Mr. Samuel John Wavish, Shipbuilding Manager, Cammell, Laird & Co., Ltd.
Mr. George Philip West, Steel Superintendent, Materials and Priority Department, Admiralty.
Mr. Roland Whitelocke Whitlock, Marine Insurance Expert, Ministry of Food.
Mr. John Whyte, Chief Engineer, Mercantile Marine.
Mr. George Hudson Wright, Engineering Manager, Cammell, Laird & Co., Ltd.
Engineer Commander Archibald Anthony McDonald, Royal Indian Marine; Senior Marine Transport Officer for Coaling Duties, Bombay.
Captain Duncan Frederick Vines, R.I.M., Port Officer, Calcutta.
Mr. James Ernest Needham, of Purdie & Co., Freight Brokers, Bombay.
Mr. Alexander Cochran, Managing Director, Burn & Co., Calcutta.
Mr. Charles Herbert Page, Acting Director, Steamers Department, Soudan Government.

MEMBERS.

Captain Ivor Yorath Acraman, Canal Superintendent, Manchester.
Mr. George Alder, Ermin's Floating Dock Company, Middlesbrough.
Mr. Robert Bayles Armstrong, Assistant Manager, Engineering Side, R. & W. Hawthorn, Leslie & Co.
Mr. Charles David Jarrett Bell, Acting Constructor, Admiralty.
Mr. Aubrey Brian Binns, Chief of Technical Department, Swan, Hunter & Wigham Richardson, Ltd.
Mr. Atholl Blair, Boiler Shop and Foundry Manager, Harland & Wolff, Ltd.
Mr. Robert Blair, McKie & Baxter, Glasgow.
Mr. Robert Blaylock, Works Manager, The Darlington Forge Company, Darlington.
Mr. Edwin Lewton-Brain, Acting First Assistant Electrical Engineer, Department of Director of Dockyards and Repairs, Admiralty.
Captain David Bremner, Master of a Transport
Mr. Stanley Alexander Bridger, Foreman of the Yard, Gibraltar.
Mr. David Brown, Chief Draughtsman, Shipyard, Vickers, Ltd., Barrow.
Mr. David Caldwell, Outside Foreman Engineer, John G. Kincaid & Co., Ltd., Greenock.
Mr. Charles Maurice Carter, Acting Constructor, Department of Director of Naval Construction, Admiralty.
Mr. George Carter, Naval Store Department, H.M. Dockyard, Chatham.
Mr. James Childs, Head Iron Foreman, Swan, Hunter & Wigham Richardson, Ltd.
Lieutenant-Commander Abraham Bennett Collins, R.N., Pier Master, Hawes Pier, South Queensferry.
Mr. George Alfred Collins, Local Manager of Avonmouth Docks.
Captain William Connett, Master of a Transport.
Mr. Charles Edwin Cox, Director, C. J. King & Sons, Ltd., Stevedores.
Mr. Alexander Crawford, Swan, Hunter & Wigham Richardson.
Captain Thomas Noah Darnell, Master, Mercantile Marine.
Mr. William Davies, Director, Lane & MacAndrew.
Mr. James Dickie, Dock Manager, Palmer's Shipbuilding & Iron Company, Ltd., Hebburn.
Mr. William Dickinson, Foreman Engineer, Swan Hunter & Wigham Richardson, Ltd.
Mr. Henry John Eastcott, Steel Superintendent, Materials and Priority Department, Admiralty.
Mr. Richard Garlick, Indoor Technical Manager, Northumberland Shipbuilding Company, Ltd.
Mr. James Gillespie, Works Manager, David Colville & Sons, Ltd.
Captain William Purvis Glendenning, Master, Mercantile Marine.
Mr. William Gouk, Engine Works Manager, Harland & Wolff, Ltd.
Captain Ernest Grandin, Master of a Transport.
Mr. Thomas Collier Grounds, Partner, Hogg & Robinson, Admiralty Shipping Agents.
Miss Alice Mary Hall, Matron, Dreadnought Seamen's Hospital, Greenwich.
Captain John Job Hall, Master, Mercantile Marine.
Mr. Millar Wright Hawson, Supervisor and Outdoor Manager, Messrs. Rea, Coaling Agents.
Mr. George Hazlehurst, Dock Traffic and Railway Superintendent, Manchester Ship Canal Company.
Mr. Alexander James Hendin, Chief Draughtsman, Shipbuilding Department, The Fairfield Shipbuilding & Engineering Company.
Captain Thomas Hewitt, Master, Mercantile Marine.
Mr. Robert Hinchliffe, Chief Draughtsman, Sir W. G. Armstrong, Whitworth & Co.
The Rev. Charles William Hodder, Welfare Supervisor, W. Denny & Bros., Ltd.
Mr. William Anthony Hogarth, Works Manager, The Steel Company of Scotland, Ltd.
Mr. Thomas Houston, Assistant Shipyard Manager, Harland & Wolff, Ltd.
Mr. William Hume, Manager of Boiler Department, Wallsend Slipway & Engineering Company, Ltd.
Miss Edith Lena Hunter, Secretary, Y.M.C.A., with the Mesopotamian Expeditionary Force.
Mr. George Albert Hunter, Leading Draughtsman, Swan, Hunter & Wigham Richardson, Ltd.
Mr. Thomas Jobling, Foreman Blacksmith, Swan, Hunter & Wigham Richardson, Ltd.
Mr. Henry Titus Kelly, Chief Engineer, Mercantile Marine.
Captain William Stephen Lobb, Master, Mercantile Marine.
Captain William Long, Manager, Steamship Department, Elders & Fyffes, Ltd.
Mr. Andrew McClelland, Chief Shipyard Draughtsman, Swan, Hunter & Wigham Richardson, Ltd.
Mr. Thomas Brown McGilchrist, Chief Engineer, Mercantile Marine.
Mr. Joseph MacGregor, Manager, Bull Ring Department, Smith's Dock, South Shields.
Mr. James Graham McIlvenna, Assistant Outside Manager, Swan, Hunter & Wigham Richardson, Ltd.
Mr. Donald Mackenzie, Chief Engineer, Mercantile Marine.

Mr. John Hair Kirk McLean, Manager, Repair Yard, Readhead & Sons, South Shields.

Mr. Hugh McMaster, J.P., Leading Plater, Russell & Co., Port Glasgow.

Mr. Thomas McPherson, Chief Draughtsman, The Wallsend Slipway & Engineering Company, Ltd.

Mr. Alexander McRae, Chief Shipyard Draughtsman, Swan, Hunter & Wigham Richardson, Ltd.

Mr. Neil McVicar, Assistant Manager, Barclay, Curle & Co., Ltd.

Captain Lionel John Manning, Master, Mercantile Marine.

Mr. Thomas Langley Maycock, Managing Director of Herbert Watson & Co., Shipowners, Manchester.

Mr. Alexander Miller, Chief Engineer, Mercantile Marine.

Captain Thomas Moir, Master, Mercantile Marine.

Mr. Thomas Mordey, Head Foreman over Steel Workers, Wm. Gray & Co., Ltd., West Hartlepool.

Mr. Edward Barcham Morgan, Shipyard Engineer, Swan, Hunter & Wigham Richardson, Ltd., Newcastle.

Mr. Arthur Morris, Assistant to General Manager, Sir W. G. Armstrong, Whitworth & Co.

Mr. James Augustus Morrison, Master of the Homes and Hospital Incorporated Soldiers' and Sailors' Society.

Mr. John Morrison, Works Manager, Shipyard Department, Harland & Wolff, Ltd.

Mr. Ernest Henry Murrant, Private Secretary to Managing Director of Furness, Withy & Co., Ltd.

Mr. Charles Bain Niven, Chief Engineer, Mercantile Marine.

Mr. John David Oliver, Foreman of Machine Shop, Emerson, Walker & Thompson, Gateshead.

Captain Thomas Benjamin Oxland, Master of a Transport.

Mr. Joseph Hind Pescod, Chief Draughtsman, Warship Drawing Office, Swan, Hunter & Wigham Richardson, Ltd.

Mr. Thomas Rainford, Manager, Worms & Co., Marseilles.

Mr. William George Rowe, Assistant Shipyard Manager, J. Samuel White & Co., Ltd., Cowes.

Mr. Henry Weir Runciman, Head Foreman, Donkins & Co., Newcastle.

Mr. George Henry Rutland, Chief Draughtsman, Warship Department, R. & W. Hawthorn, Leslie & Co., Ltd.

Mr. William Sambridge, Foreman Carpenter, Swan, Hunter & Wigham Richardson, Newcastle.

Mr. Donald McLean Skiffington, Outside Manager, Shipyard Department, John Brown & Co., Ltd., Clydebank.

Mr. Dempster Smith, Mirlees, Bickerton & Day.

Captain Alfred Smy, Master, Mercantile Marine.

Mr. Stanley Sparkes, Secretary, Mediterranean Conference, Ministry of Shipping.

Mr. Gavin Spiers, Head Foreman over Steel Workers, W. Gray & Co., Ltd., West Hartlepool.

Mr. Leonard Stanley, Accountant, Manchester Munitions Board of Management.

Captain Frederick William Stanton, Army Service Corps.

Mr. Frank Tapscott Stark, Assistant Manager, Alexandra Towing Company, Liverpool.

Mr. David Swanson, David Rowan & Co., Glasgow.

Captain Edward Thomas, Master, Mercantile Marine.

Mr. Edward Thompson, Foreman Moulder, Blair & Co., Ltd., Stockton.

Mr. John Sinclair Thyne, Manager, S. P. Austin & Son, Ltd., Sunderland.

Mr. Harry Topham, Assistant Inspector of Steel, Admiralty.

Mr. George Drummond Turnbull, Chief Engineer, W. S. Miller & Co., Shipowners, Glasgow.

Mr. Cameron Turner, Works Manager, McKie & Baxter, Glasgow.

Captain Charles Vickers, Master, Mercantile Marine.

Mr. John Henry Ward, Acting First Assistant Electrical Engineer, Department of Director of Dockyards and Repairs, Admiralty.

Mr. William Findlay Warnock, Chief Draughtsman in Shipyard of John Brown & Co., Ltd., Clydebank.

Mr. Marmont Warren, Central Marine Engineering Works, West Hartlepool.

Mr. John Stewart Watkins, Steam Tug Owner.

Mr. James Watson, Foreman Turner, David Rowan & Co., Ltd., Glasgow.

Captain John William Watt, Master of a Transport.

Mr. John Watters, Manager of Iron Department, Workman, Clark & Co., Ltd., Belfast.

Captain Alexander Webster, Master, Mercantile Marine.

Mr. John Richard Westcott, Secretary, Alexandria Conference, Ministry of Shipping.

Mr. Martin Wilkinson, Engine Works Machine Shop Foreman, Swan, Hunter & Wigham Richardson.

Mr. George Alexander Wilson, Steel Works Manager, The Cargo Fleet Iron Company, Ltd.

Mr. Thomas Wright, Outside Engine Works Manager, Harland & Wolff, Ltd., Belfast.

Mr. Charles Frederick Laslett, Chief Engineer, Royal Indian Marine, Bengal.

Lieut.-Commander John Chappell Ward, Royal Indian Marine; Assistant Port Officer and Deputy Shipping Master, Calcutta.

Mr. Sidney Hugh Reaks, Senior Master Pilot, Officiating Assistant Port Officer and Deputy Shipping Master, Calcutta.

Babu Upendra Nath Sen, Shipping Broker, Calcutta.

Babu Atal Chandra Ghose, Shipping Broker, Calcutta.

Sir John E. Thornycroft, K.B.E., the present managing director of John I. Thornycroft & Co., Ltd., shipbuilders and engineers, is the eldest son of Sir John I. Thornycroft, F.R.S., and was born in 1872. He was educated at St. Paul's School, and later at the Central Technical College, where he took the course of engineering. Apprenticed to John I. Thornycroft & Co., Chiswick, he passed through the various shops and obtained a thorough knowledge of the various activities of the firm. He has been closely connected with all improvements relating to torpedo boats and high-speed craft generally built by the firm, and during his career has read various papers dealing with torpedo-boat destroyers, &c., before the Institute of Naval Architects; he is also a member of the Council of the Institute of Naval Architects. During the present war he has been responsible for many important developments in special types of high-speed motor craft, and in other ways has assisted considerably the work of both Navy and Army.

Mr. Harry Cocks, of Harry Cocks & Co., Cardiff, has been appointed by Lord Pirrie as Assistant Director of Supplies in the Department of the Controller-General of Merchant Shipbuilding. For the past few months Mr. Cocks has been engaged at the Admiralty as Technical Adviser on Ships' Equipments. Mr. Cocks is a director of several important companies, and a member of the Cardiff Coal and Shipping Exchange, the Cardiff Chamber of Commerce, and of the Baltic Exchange, London.

Mr. George Rawlings Martyn, J.P., of Skelmorlie, Stow Park Circus, Newport, Mon., a director of Martyn, Martyn & Co., Ltd., shipowners, Newport (Mon.), Cardiff and Bilbao, has left estate of the gross value of £74,427.

Mr. A. Munro Sutherland, chairman of the Sutherland Steamship Company, Ltd., was on Monday unanimously elected Chairman of the Newcastle Commercial Exchange Company, Ltd., in succession to the late Sir William H. Stephenson.

Mr. Herbert Sidney Watkins, an officer in the British Mercantile Marine, has been awarded a bronze medal and diploma by the President of the French Republic in recognition of his services in saving life in the dock at Boulogne on December 2 last.

In a list of names forwarded by Sir Douglas Haig, as deserving of special mention is that of Lieut. H. A. Darling, D.L.I., attached to the Machine Gun Corps, who is a son of Mr. Henry Darling, of South Shields, the Secretary of Smiths' Dock Company, Ltd.

Mr. Alexander Richardson, of our contemporary *Engineering*, who was the Coalition candidate at Gravesend, was elected last week with a majority of 206 votes. On Tuesday last he took the oath and his seat in the House, in succession to Sir Gilbert Parker, resigned, having been introduced by Lord E. Talbot and Colonel Gibbs.

Mr. Jas. F. Cowan, manager of the cruiser department of R. & W. Hawthorn, Leslie & Co., Ltd., Hebburn-on-Tyne, has been appointed manager of the Admiralty National Shipyard at Chepstow. He is a native of Glasgow, and served his apprenticeship with W. Denny Bros., Dumbarton. Mr. Cowan went to the Tyne from Cammell Laird & Co., Ltd., Birkenhead, about four years ago.

FROM OUR CORRESPONDENTS.

CLYDE DISTRICT.

(FROM OUR OWN CORRESPONDENT.)

Home Trade Transport Committee.—In connection with the decision of the Ministry of Shipping to set up a Home Trade Transport Control Committee steps have been taken to appoint the committee for Glasgow. In response to an invitation by the Ministry, the Clyde Trustees have nominated a representative to the new body, Mr. Daniel Shields, convener of the Trust's Traffic Committee, having been chosen. The function of the new Control Committee will be to secure the utilisation of all means of water carriage to the fullest extent in order to relieve the railways of traffic as far as possible. District committees will be set up at all the principal ports in the Kingdom.

The Dock Labour Dispute.—The dock labourers who were on strike recently at Ayr, Ardrossan, Irvine, and Troon have all resumed work on the understanding that their case will be considered by the Committee on Production as soon as possible. It was mainly as a protest against the delay in dealing with their application that the men came out on strike, and the opinion is expressed by the trade union officials that there is room for a good deal of speeding up in connection with the work of settling any disputes which may arise. It has to be remembered, of course, that the Committee on Production are heavily burdened with work, and time will have to be allowed in order that they may overtake arrears. It is expected that the Committee will arrange to hold a sitting on an early date in Glasgow to deal with the dispute at the Ayrshire ports, and also with certain differences which have arisen between the dock labourers and their employers at Glasgow.

Shipbuilders Lease Greenock Dry Dock.—An arrangement has been come to between Greenock Harbour Trust and a local shipbuilding firm whereby the Garvel Graving Dock at Greenock will be leased to the firm for a term of years. The proposal for letting the dock has been under the consideration of a committee of the Trust for some time, and the arrangements made by them with regard to the matter were confirmed at a meeting of the Trustees last week. The firm concerned is Russell & Co., Port Glasgow, on behalf of whom Mr. Harry Lithgow, one of the principal partners, has carried out the negotiations. The committee of the Trust reported that while averse on principle to the proposal to grant exclusive possession of the graving dock for a term of years to any one firm, they resolved unanimously to accept the offer as the terms were in their opinion highly advantageous. The agreement includes the provisions that the tenant during the tenancy will relieve the Trustees of all rates and assessments imposed upon them as proprietors of the dock and ground, and during the same period the tenant will be responsible for the ordinary repairs and running charges. Mr. Lithgow had stated, it was said, that he would agree to make the dock available for the repair of the Trustees' caissons, if necessary, and he would not unreasonably refuse the use of the dock to any vessels coming to Greenock. On the recommendations of the committee being submitted to the Trustees it was resolved by 13 votes to 2 to lease the dock.

NORTH-EAST COAST DISTRICT.

(FROM OUR OWN CORRESPONDENT.)

Transport Workers' Wages.—The transport workers of the Tyne, Wear and Blyth submitted an application to a meeting in Newcastle of representatives of timber merchants, stevedores and others engaged in the transport trades for the national award made to dockers by the Committee on Production to be applied to them. It was resolved that when the war advance already given was less than 5d. per hour, the men should be paid a further increase of 2d. an hour, female workers 1d. an hour, and boys ½d. an hour, with overtime in proportion. This applies to time workers, the case for piece workers being the subject of separate negotiations.

National Transport Workers' Association.—The annual meeting was held in Newcastle on Thursday and Friday last. The association is now an important aggregation of the handling trades, and when we remember its association with the railwaymen and the miners—the triple alliance as it is called—we can easily realise the potentialities of the relationship should there be a decision to take joint action in any big wages movement in the future. The Transport Workers' Federation has at the present time a very capable president in Mr. Harry Gosling, and his address to the delegates dealt largely with the propaganda and educative work of the past 12 months. He said there was a vast field for improvement generally in working-class lives and conditions, and his advice was to keep constantly raising the standard of living. This is a legitimate aspiration, if sought on practical and conciliatory lines, and if labour is to benefit to the full it must work with and not be hostile to capital.

THE MERSEY DISTRICT.

(FROM OUR OWN CORRESPONDENT.)

Coastwise Agency Fees.—A meeting of the Liverpool Shipbrokers' Association was held on Monday this week, when the question of a revision of coastwise agency fees was discussed, and an increase of approximately 50 per cent. was decided upon.

Shipyard Strike Settled.—The strike of approximately 4,000 men employed by H. & C. Grayson, Ltd., at their Mersey shipyards, which has been proceeding for a week, has happily been settled. At a meeting of the workmen on Monday it was decided to return to work at once on the understanding that a Court be set up to inquire into the cause of the dispute, namely, complaints made against a timekeeper in the firm's employ. Pending the Court's decision the timekeeper to remain at the company's office, where he has been transferred. The meeting expressed the view that if the matter had been dealt with by the shipyard labour department of the Admiralty no strike would have been necessary, and it was urged that this department should be given power to deal with all disputes in shipyards.

SOUTH WALES DISTRICT.

(FROM OUR OWN CORRESPONDENT.)

Shipbrokers' Fees.—In regard to the fees payable to shipbrokers on requisitioned neutral vessels, the Bristol Channel Institute of Shipbrokers has received a communication from Sir Ernest Glover, stating that these fees apply to boats in the North French and Bay trades. Outside of that, say to Lisbon, Gibraltar, Mediterranean, &c., it is very seldom, Sir Ernest points out, that neutral big ships are concerned. Where they are, the matter of remuneration should be referred to him.

Freight Rates to France.—A notice posted on the Cardiff Exchange states that shipowners, shipbrokers, and coal exporters are informed that the rates of sailing vessels to French Bay ports have been altered as follows:—For North French ports, Brest included, rates remain unaltered as per last Order. From L'Orient to the Loire ports, 100s.; from Loire to Charente ports included, 110s.; from Gironde ports, Arcachon and Bayonne, 120s. These are maximum and not fixed rates. The Bureau des Charbons, Paris, request coal exporters to place the French authorisation number in one of the corners of the bill of lading.

Another notice states that a communication has been received from the Ministry of Shipping to the effect that ex-neutral rates for coal are determined by the old schedule, plus 12s. for North French ports, or 18s. for French Bay ports, with the simple addition of the extra rate for the particular commodity allowed by the schedule. The ex-neutral rates for the commodities indicated are:—Patent fuel, 5 per cent.; pitch, 15s. per ton; pig-iron, 7s. per ton; scrap iron, steel and tinplates, rails, fishplates, 8s. 6d. per ton; clay, cement, 4s. per ton.

THE COAL MARKETS.

(FROM OUR OWN CORRESPONDENT).

The boom in the coal trade continues. Market conditions have, as a matter of fact, been growing stronger under the pressure of home and foreign demand for fuel, while the supply has been diminishing. The reduction of labour is largely responsible for the existing shortage of coal, but at the same time the demand has increased, and with the facilities for transportation so markedly

improved the collieries are quite unable to meet all the demands made upon them.

The coal shortage is apparently not in any particular district, but is universal throughout the country, and with the demand now so greatly in excess of the supply prices have risen, so that the official quotations are no guide to present-day values. The strong tone of all the markets which now exists bids fair to continue; there are no indications of any change likely to lead to the requirements of consumers slackening or of any slump in prices.

Along with the improvement generally to be noted in the position of the coal trade has come a decidedly firmer tone in the bunker coal section of the market. So great is the pressure for fuel that bunkers are being diverted from their true purpose to other channels, and bunker coals of all descriptions have risen very appreciably in value. Durham bunkers which a few weeks ago were a drug in the market at the official minimum figures of 24s. to 27s. 6d. easily realise now 40s., and specials are unobtainable on the open market. Even ordinary bunkers are scarce. In South Wales also small steams for bunkers are hard to get and for this description of fuel good prices are being realised.

The North Country coal market is being pressed very hardly for supplies for neutral countries, but supplies are so short that merchants are unable to entertain orders for delivery earlier than the first part of August. Tonnage is in ample supply, and in fact vessels are waiting turn for berth. The pits are all working full time, but with the limited amount of labour available in consequence of the miners' comb-out, the output cannot be increased, and the shortage of fuel is likely to remain a pressing problem for months to come. Best Blyth steams have been sold at 65s. Tyne primes have made 60s., and this is the price quoted for North Northumberlands, while second steams cannot be bought for less than 55s. For smalls of any description 40s. can be obtained. Gas coals are worth up to 45s. or 50s., and coke is firmly held at about 50s.

Official quotations are for best Blyth steams, 30s. to 32s. 6d. and smalls, 18s. 6d. to 20s. 6d.; Tyne primes, 29s. 6d. to 32s., and smalls, 25s. to 27s. 6d.; second steams, 25s. 6d. to 29s. 6d. and smalls, 18s. 6d. to 20s. 6d.; unscreened steams, 24s. to 25s.; North Northumberland steams, 28s., and smalls, 20s.; smithies, 20s. to 30s.; nuts, 32s. 6d. to 33s. 6d.; gas coals, 23s. 6d. to 30s.; coking coals, 17s. to 25s.; house coal, 20s. to 22s. 6d.; bunkers, 24s. to 27s. 6d., and specials, 30s.; foundry coke, 42s. 6d. to 45s.; and blast furnace coke, 35s. 6d.

Neutral inquiries on the South Wales coal markets have been insistent, but have produced little or no results of practical value.

Official quotations are: For best steams, 35s. 6d.; smalls, 33s. 3d. to 34s.; ordinary steams, 32s. 6d.; drys, 31s. to 32s. 6d.; small steams, 20s. 6d. to 25s.; best large Black Veins, 32s. 6d.; Western Valleys, 31s. 6d.; Eastern Valleys, 30s. 6d. to 31s. 6d.; nuts, 30s. 6d. to 32s. 6d.; duff, 16s. 6d. to 20s. 6d.; house coal, 33s. 3d. to 35s. 6d.; No. 3 Rhonddas, large 33s. 3d., small 28s. 6d.; No. 2 Rhonddas, large 29s. 6d., and small 19s. 6d. to 21s. 6d.; through and through coal, 24s. 6d. to 26s.; gas coal, 23s. 6d. to 27s. 6d.; and patent fuel, 32s. 6d.

THE FREIGHT MARKETS.

(From Our Own Correspondents.)

London.—There is little alteration in the freight markets, though chartering on the Baltic Exchange is dull. From the River Plate homeward rates are still on the basis of 225s. to the United Kingdom or 250s. to France. The ports of the North American Atlantic seaboard provide a good demand for tonnage to load heavy grain at 50s. to the United Kingdom, 57s. 6d. to France, 75s. to French Mediterranean ports, and 77s. 6d. to West Italy. There is a less sustained request for tonnage on net form of charter, but rates are fairly steady at 220s. to the United Kingdom, 240s. to France, and 360s. to West Italy, with 30s. additional for Gulf loading. To the River Plate, Virginia coal cargoes offer at 80s., while 84s. is obtainable to Rio Janeiro. Competition for tonnage from the East is as keen as ever. Karachi would pay 250s. on scale basis to this country, Bombay offers 275s. on deadweight to the United Kingdom and 400s. to the Mediterranean, and the Madras Coast indicates 550s. for kernels to Marseilles. The rice ports of Saigon and Burmah offer 500s. to France or the United Kingdom. Chartering in the Mediterranean section of the market proceeds at unaltered rates, 45s. offering from Huelva to the Mersey, 60s. from Huelva to the East Coast United Kingdom, 50s. Bougie to the Clyde, and 65s. Tunis to the same destination, 70s. Sfax to the Bristol Channel, and 50s. Bilbao to Boulogne. Salt cargoes could be worked at 90s. from Torrevieja to Chittagong. Bay rates also are unchanged at 17s. Bordeaux and 20s. Bayonne to Bristol Channel.

Glasgow.—Chartering was again very quiet, and the tone of the market entirely devoid of any new feature. Rates were firmly maintained. The following were among the fixtures reported:—Bayonne, 1,400 and 1,600, Bristol Channel, 20s., prompt; Norfolk to Havana, 37s. 6d., coal; steamer fixed on time charter, States and West Indies, 35s., one round trip, delivery and re-delivery north of Hatteras; ship chartered, Gulf to North Cuba, 83s. 6d.; and ship chartered, Virginia to Rio de Janeiro, about 81s. 6d.

Newcastle-on-Tyne.—Whilst the Newcastle coal market appears to attain to greater strength each week nowadays, the local chartering market goes on from weakness to greater weakness. At present the collieries need not concern themselves regarding this latter circumstance, for they are all fully engaged in a strenuous endeavour to keep pace with the arrivals of requisitioned tonnage and of railway wagons, and are hardly able to do so, so seriously has their output been affected by recent legislation in military interests. With Government, Allied and home requirements monopolising the attention of the coal trade, there is little scope for chartering for neutral destinations, albeit the inquiry from these for fuel supplies is very considerable. Excepting for Scandinavian destinations, very little neutral tonnage is on offer, and the result is that Scandinavia alone is receiving any attention worth mentioning. During the week Christiania is reported to have been done at 165 kr., Warberg at 180 kr., and Gothenburg (thrice) at 205 kr. These are very high rates, in the case of Gothenburg constituting an advance of fully 20 kr. on the week. For Stockholm, up to about 225 kr. is now quoted. These sensational figures are due to the comparative shortage of Swedish tonnage and the great difficulty experienced in securing loading turns. For all other directions there is any amount of business, but very little tonnage on offer, and the only destinations in which anything has been done have been coasting and Allied directions at scheduled figures, and Gibraltar (twice) at 100s. The rates quoted three weeks ago as regards other directions still stand, in the absence of any actual business wherewith to test them.

Liverpool.—Outward freights on this market continue very quiet, but the tonnage is as keenly sought after and as difficult to get. Ships as they become available are further reserved for Allied requirements, thus outside chartering is reduced to a minimum. The demand for time charters keeps good, but here again business is confined to tonnage available. States-West Indies rounds continue to make 35s., while a boat of 5,000 tons d.w. has been fixed in the general trades for six months at 46s. 3d Homeward freights are quiet and generally unchanged. North America has need of tonnage and for net charters quotes 220s. to United Kingdom, 250s. to North France, and 360s. to Italy from Atlantic ports, with 30s. more obtainable for Gulf loading. Grain continues on basis of 50s. to United Kingdom from Northern range. River Plate has a steady tone and for neutrals quotes 225s. to United Kingdom, 250s. to North France, and $20 to East Coast North America. Eastern markets maintain their firm tone, and offer extreme rates for free boats, which do not respond. Values are unchanged. Australia seeks free tonnage on basis of 130s. to United States, and 110s. to South Africa.

Cardiff and Swansea.—An increased amount of business has been done on the market, but, owing to the fact that outputs in the coalfield are nearly all absorbed by the authorities for official and allied account, there is extremely little coal available for neutral destinations. Tonnage continues to arrive freely, and is more than ample to lift the coal produced. There has been a good inquiry, and rates for the limitation ports were fully maintained. Tonnage has been offering for Spain on the basis of 300s. for Bilbao, but the scarcity of coal hampered business. A Spanish vessel was fixed for Huelva at 400s., and a similar rate was offered for Barcelona, this figure shows a fall of 20s. on the last fixture reported. The other business disclosed was:—Rouen at 47s. 9d. and 48s. 9d. (neutral); Nantes, 29s., exclusive of war risk (Allied). Gibraltar was again done at 100s., and Buenos Ayres at 120s. On the Swansea market there was an active demand, but actual business was on rather restricted lines, owing to poor tonnage offers. Rates for all directions were firmly upheld. The following fixtures were reported: Dublin, 17s.; Rosslare, 18s 6d. France was represented by fixtures for Caen at 46s. 6d. and 48s.; Granville, 48s., and Bordeaux at 69s., all neutral vessels.

COMPANY MEETINGS.

Royal Mail Steam Packet Company.—The annual meeting was held on June 5 at the City Terminus Hotel, Cannon Street, London, E.C.

The Chairman (Sir Owen Philipps, G.C.M.G., M.P.), in moving the adoption of the report, said that their business had come more completely under Government control for the purposes of war. A large proportion of their fleet was engaged in direct war service under the Admiralty, as armed merchant cruisers, transports, hospital ships, &c. The whole of the remainder was now under requisition by the Ministry of Shipping. The earnings of the latter were for Government account, the company only receiving hire-money at Blue-book rates for the use of the ships. Comparison of results with past years would be futile.

Financial Position.

The accounts revealed a thoroughly sound financial position, as the fleet and investments were worth at present more—considerably more in some cases—than the figure at which they stood in their books. The size and scope of the company's business might be judged by the fact that their ordinary, preference, and debenture stock and reserves now amounted to over £10,500,000 sterling. During the last 20 years the average dividend paid on the ordinary stock had been at the rate of 3½ per cent. per annum; for the last ten years, the annual dividend had averaged 4½ per cent.; whilst for the last four years the average dividend had been just over 5 per cent. It was only for the past two years that they had been able to recommend a dividend at the rate of 7 per cent. per annum, less income-tax. In carrying on a regular liner business, their aim was to earn a reasonable and steady return upon their capital, whilst endeavouring to meet the requirements of the country's overseas trade and to maintain and strengthen their position as one of the great British mail and passenger lines.

The Company's Ships.

The company would have had a considerably larger fleet now than at the commencement of the war had it not been for the action of the Government in deciding that standard ships should be built and paid for by the Government, instead of allowing the great companies to take up their fair proportion of new tonnage, and thus help to relieve the strain on the Treasury at a time when they were all urged to save every pound to put into National War Bonds to enable the Empire to finance the war. It had been suggested that the Government should take advantage of the present high prices of vessels to sell some or all of the standard ships they had recently built, or which were in course of construction for their account to British shipowners in order that they might make good in some measure the gaps which war losses had caused in their fleets. They had been able, throughout the past year, to afford fairly regular opportunities for the conveyance of mails, passengers, and cargo to and from South America. Their refrigerated vessels continued to render great assistance to the Allied cause in bringing large quantities of meat from the Argentine for the British, French and Italian armies, as well as for civilian needs at home. The Royal Mail and its associated companies, in conjunction with certain leading French and Italian shipping interests, had acquired a large holding in the Argentine Navigation Company (Nicolas Mihanovich), Ltd., an important concern, with an extensive organisation for linking up the South American ports by means of coasting vessels, river craft, tugs, lighters, &c.

Services to West Indies.

Their regular mail, passenger, and cargo services to and from West Indian ports had been curtailed. There were many signs, however, that favourable developments were possible in the commercial outlook of the British West Indian colonies, as the war was bringing home to the people the importance of making the British Empire self-supporting in the matter of sugar production. The fact that the West Indies were situated on the new sea routes brought into being by the opening of the Panama Canal should also tend to stimulate West Indian trade. It was gratifying to know that the British Government was alive to these possibilities, as evidenced by the recent appointment of Mr. A. J. Pavitt as British Trades Commissioner to the West Indies under the new Foreign Office and Board of Trade Department of Overseas Trade. As soon as circumstances permitted, the Government might possibly consider it advisable to go still further in the direction of recognising the growing importance of the British West Indian colonies by arranging to pay an adequate subsidy for the maintenance of a suitable mail service between this country and the West Indies.

The Submarine Menace.

Early this year, when the output of new tonnage fell so alarmingly, it was realised by the public how gravely the whole Allied cause was menaced by the continued sinking of ships, and that the new cargo vessels promised by British and American statesmen were not being constructed fast enough to replace losses. An important statement on the subject was issued by the Cabinet as a White Paper, giving a good deal of instructive information as to tonnage losses and shipbuilding output since the commencement of the war. From that statement it was apparent that, taking into account—as regards the United Kingdom, the Allies, and neutrals—our combined shipbuilding output and the tonnage of enemy ships captured and brought into Allied service, on the one side, and the total war and marine losses on the other, we had the following results, namely, by the end of 1915 we were just over 1,000,000 tons to the good—that is to say, 1,000,000 tons more than on the outbreak of war. By the end of 1916 that increase had dwindled to 230,000 tons, and by the end of 1917 we were over 2,500,000 tons to the bad.

Greater Output Required.

It seemed that we were holding the submarine campaign in check with increasing success, but were not yet within measurable distance of its complete elimination as a serious menace. It therefore needed a greater output from the shipbuilding yards in this country, the United States of America, and Canada, in order to reach the point where production would balance losses, and to begin to make good the losses of the past year. He could not help feeling that shorter intervals in issuing the tonnage losses would have a very stimulating effect on the production of new vessels. Our shipbuilding yards were, after all, not the least important of our "fronts," and it was well to keep that fact in view. In the matter of shipbuilding, the country was to be congratulated upon having secured the services of Lord Pirrie as Controller-General of Merchant Shipbuilding, and under his guidance the next half-year would probably reveal satisfactory progress in the national output of mercantile vessels.

Control of Shipping After the War.

It was evident that at the end of the war there would be for a time a great demand for ships, and exceedingly keen competition for their services. No doubt, a certain amount of Government control over shipping might be necessary for a brief period in order to ensure essential supplies, but it was much to be hoped that Government control would be relaxed at the earliest possible moment after the conclusion of peace. Many highly important overseas trades had been temporarily abandoned by British shipping companies owing to the exigencies of war. It was essential in the national interests that those regular steamship services should be resumed as promptly as possible if we were to hold our own in the future as a maritime Power. The sphere of Government control should be limited to enforcing proper rules and regulations in regard to the construction of ships, their seaworthiness, equipment, manning, &c., and to securing, as far as practicable, fair play for British shipping in competition with foreign nations, more especially where foreign shipping was directly or indirectly State-aided.

State Ownership.

No British industry was less adapted to State ownership than shipping. It had been created and built up by successive generations of strenuous and enterprising men, and it was difficult to conceive that the world-wide ramifications of our maritime trade could possibly be upheld and expanded by Government officials, however able and efficient in their own sphere. At the end of the war the British mercantile marine, which had proved its absolute indispensability to the nation in these days of peril, would be faced with an unprecedented position. Its tonnage had been depleted, and what remained would require considerable overhaul after the strain of running under pressure of war conditions. British shipping companies had had to meet exceedingly heavy taxation, and all working costs had increased enormously. On the other hand, in amount of tonnage and in financial resources, foreign shipping would be equipped as never before to contest our former supremacy as the world's ocean carrier.

The Navy and the Mercantile Marine.

Last year, when the unrestricted U-boat warfare had reached its zenith, he ventured to predict that, grave as the position then was, the British Navy and its gallant personnel would be equal to the

difficult and heavy task imposed upon them. He thought he might safely say that the prediction had been fulfilled. Both in offensive and in defensive measures, the British Navy—assisted by the Navies of our Allies—had won our admiration and gratitude. It was officially stated that since the commencement of this year enemy submarines were being sunk faster than they could be built. The Navy had been no less active in the defensive sphere, and the convoying of mercantile vessels had been developed with increasingly successful results.

In equal degree their gratitude and admiration were due to their "brothers in courage and brothers in devotion to duty," as the First Sea Lord recently and justly described the officers and men of the mercantile marine. By their persistence and courage in face of perils unknown in any former age, they had maintained the lines of communication with the fighting forces and preserved this country and our Allies from isolation and famine.

The Staff.

With few exceptions, all their men of military age and fitness were serving in the Navy or Army. Upon those who remained a larger share of work and responsibility had fallen, and the directors desired once again to express their appreciation of the good work of the general managers and the members of the staffs at home and abroad who were carrying on in these difficult times.

For some years he and his colleagues had devoted a good deal of attention to making provision for the members of the sea and shore staffs of the Royal Mail and its associated companies when, after long and faithful service, they reached the period of retirement. With that end in view the company and four of its associated companies had founded superannuation associations, with funds vested in trustees, so as to be absolutely secure, and managed by joint committees representing directors and staff. At the present time they had a membership of 3,856, which included members of office staffs, at home and abroad, captains, officers, engineers, pursers, and chief stewards. The total invested funds now amounted to £863,000, and the total gross income this year from the investments was estimated at £43,000. Some provision was also made for old age in the case of other employees after periods of long service, and for their widows and dependants in the event of death.

The Future.

Nothing was more difficult under normal circumstances than intelligently to forecast the outlook for the British shipping trade, but never in any period in our history had it been more difficult to do so than now. Undoubtedly high freights would continue for a time after the war, but he saw no grounds to warrant what appeared to be a very general belief, that the conclusion of peace would be followed by many years of great prosperity for British shipping. But whatever the future might have in store, the policy of the directors would continue to be to carry on on the same lines as in the past, and not only to endeavour to meet all reasonable requirements both of the travelling public and of the merchants and shippers who gave their support, but to seek to ensure that the Royal Mail should be in the future what it had been in the past, and that was, one of the great arteries of British overseas trade and commerce.

Sir Joseph Savory, Bt., seconded the motion, which was at once agreed to.

Siemens Brothers & Co., Ltd.—The ordinary general meeting was held on June 11 at Winchester House, Old Broad Street, E.C.

The Chairman (Mr. G. Mure Ritchie), in moving the adoption of the report, said that during the past year the company had adhered to its past policy, and the volume of the business done exceeded that of 1916 by about one-third. The expansion in output occurred principally in insulated wires and cables, ebonite, and batteries. In regard to the development of automatic telephony, which the company foresaw before the war, the advantage of eliminating the human exchange operator had been demonstrated in practice, and all technical difficulties surmounted, and they were equipped to provide large exchanges for public service and also private exchanges of 25 to 500 lines. Notwithstanding the demands of war work, they had completed a semi-automatic exchange of 1,000 lines at Port Adelaide for the Commonwealth of Australia, and a full automatic exchange of 1,300 lines at Grimsby for the G.P.O., while good progress had been made with a full automatic exchange of 950 lines for Stockport, also for the G.P.O. Many private exchanges had been established in munitions factories, and had given every satisfaction.

Increase of Profit.

The year's profit of £208,524 showed substantial increase over that of 1916, due to the very much larger volume of business done. An interim dividend of 10 per cent., free of income tax, had been paid, but no further distribution for the year 1917 could be considered until the Government claim for excess profits duty had been adjusted. The balance sheet showed £764,524 for materials, manufactured goods, and work in hand. That was more than double the pre-war amount of £377,385, the increase being due entirely to the growth of expenditure on orders in hand, which at December 31 exceeded in value £1,500,000.

An important asset was the holding of the entire issued capital of Siemens Bros. Dynamo Works, Ltd., namely, £200,000 in shares and £200,000 in debentures. At the outbreak of war the share capital of Siemens Bros. & Co., Ltd., was £600,000, with £150,000 of 4 per cent. debentures, nearly all the shares and about one-third of the debentures being held by Germans. Moreover, the German shareholders had supplied funds to meet the capital requirements of the growing businesses of the two companies. When war began the entire German interest in the shares and the additional capital referred to was vested in the Public Trustee, who took steps to realise it by sale to a British buyer, and on December 14, 1917, the share capital of Siemens Bros. & Co. was purchased by C. B. Crisp & Co. The contract provided for the issue to the Public Trustee by the company of £1,330,000 of 4½ per cent. debentures to provide for the repayment of capital (other than share capital), and the participation in the 4 per cent. debentures employed in the business by the former German owners; and the Public Trustee had a right after the conclusion of peace to call for the redemption of these debentures on one year's notice. Subject to such arrangement, they were redeemable by annual drawings calculated to extinguish the whole in 25 years from the date of issue.

Reconstruction of the Board.

Following this arrangement with the Public Trustee the board was re-constituted, and now consisted of Mr. G. Mure Ritchie (chairman), Sir William Bull, M.P., Sir Clifford Cory, M.P., Lord Queenborough, Mr. H. J. Thomas, and Mr. G. Chauvin (managing director). The new board had devoted attention to many questions concerned with the development of Siemens Bros. into a great national manufacturing asset, leaving little time for discussion of a scheme of re-arrangement of the share capital. The board, however, recognised the advisability of changing the capital arrangements so as to establish equilibrium between share capital and debenture debt, and at an early date the shareholders might be asked to approve a scheme for increasing the share capital to £1,500,000 (or even more) in £1 shares, of which a substantial portion would remain in reserve for future developments; but as to £400,000, if issued for cash, the proceeds would be available for the retirement of a corresponding amount of debentures. If the matter were carried through on the lines thus indicated, the joint concerns—Siemens Bros. & Co. and Siemens Dynamo Works—would be represented by an issued share capital of £1,000,000, with £150,000 of 4 per cent. debentures and about £1,000,000 of 4½ per cent. debentures, the latter being held by the Public Trustee. These readjustments were all subject to the consent of the authorities concerned, but he could go so far as to say that, as the Board of Trade wished the company to be so assisted as to ensure its future expansion in British hands, they were justified in believing that sympathetic consideration would be given by the authorities to their proposals for the financial reconstruction of the company when they were put forward.

Purchase of War Loan.

Dealing with Siemens Bros. Dynamo Works, Ltd., entirely owned by Siemens Bros. & Co., the chairman said that the turnover in 1917 increased in the United Kingdom and decreased overseas as compared with 1916. The value of unexecuted orders on December 31 was £1,145,000. Siemens Bros. & Co. and the Dynamo Works had purchased £50,000 of War Loan, and had provided several thousands of pounds to give temporary assistance to War Savings Associations for the workpeople.

Unnecessary Competition.

Since the entry of the new directors into office, negotiations had been inaugurated with other companies doing similar industrial business with the object of bringing such manufacturers together for the reduction of unnecessary competition, and the avoidance of duplicating machinery, workshops, and offices. Co-operation would make for the more continuous running of plants, with the attendant advantages of cheaper production, increased efficiency, and im-

proved quality of the work done, avoiding unnecessary expense in storage, selling organisations, and reducing the duplication of stocks to a minimum. An even more important advantage aimed at was the amalgamation of designing offices and interchange of experience, designs, and methods to the promotion of economy and efficiency. Such industrial alliance would, moreover, make it possible to carry out complete installations within the allied group. An alliance of this nature had already been arranged with Dick, Kerr & Co., Ltd., in the field of dynamo installations in all its ramifications, and other alliances were contemplated.

The motion was unanimously carried.

COMPANY REPORTS AND DIVIDENDS.

Nippon Yusen Kaisha.—For the six months ended March 31 last a dividend of 50 per cent. has been declared. For the preceding half-year the dividend was the same.

India General Navigation & Railway Company, Ltd.—The report for 1917 states that the net profit earned, after provision for income tax, depreciation, interest and all charges, and a grant of £5,000 to the provident fund, in addition to the usual contribution, is £65,767, against £72,685 in 1916; adding the balance of £24,727 brought in, there is a total sum of £90,494 available. The directors have transferred to debenture sinking fund £3,500, insurance reserve £8,973, and they recommend that the balance be disposed of as follows:—Dividend on preference shares, 5 per cent., free of income tax; dividend on ordinary shares, 8 per cent., free of tax; and to carry forward £26,485. Half the amount of these dividends has already been distributed as interim dividends, in November last. The profit earned by the Mymensingh-Jagannathganj Railway was 3,59,429 Rs., or £23,961, against £22,553 the previous year, and the Sylhet Lime Company contributed a dividend of 14 per cent. on the shares held by this company. During the year there has been only one serious loss, a stern-wheel steamer. Two old hulks and a cargo boat were sold. The fleet was, however, further depleted by the impressment by Government. A new item therefore appears among the reserves in the balance-sheet, under the title of "reserve for fleet replacement," of £142,264. On the other hand, there have been certain direct additions to the fleet, and a launch was also purchased on joint account.

NEWS PARAGRAPHS.

Shipwrecked Mariners' Society.—The Society has received from the Navy League £1,000, allocated out of £2,500 contributed by the Natal Branch of the League for certain specified charities.

Merchant Shipbuilding.—In the office of Controller-General of Merchant Shipbuilding Lord Pirrie has set up a new Department to deal with supplies for the equipment of national shipyards and the construction of standard ships. Major W. J. Hamilton, of Glasgow, is in charge of the Department, and Major J. L. Marr, of Sunderland, is his deputy.

Riveting Record at Belfast.—At Workman, Clark & Co.'s shipyard, Belfast, on Wednesday last, John W. Moir beat all the world's riveting records, driving in the nine hours' working day 11,209 rivets, against the previous record of 7,841 achieved by John Lowry at Harland & Wolff's, Queen' Island yard, on May 28, and beating his own previous record of 1,115 rivets in an hour by 294, the new figure being 1,409. He also set up a new reco d of 26 rivets in 1 minute. The work was carried out on the double-bottom floors of a standard ship of the "G" class, the rivets being $\frac{7}{8}$ in. by $2\frac{1}{4}$ in. Their weight was about 2 tons 10 cwt. Lloyd's surveyor, Mr. McIlvenna, and Mr. Buchman, surveyor for the British Corporation of Shipping, supervised the work. The following are Moir's totals, hour by hour:—

Hour.	Rivets.
First	1,167
Second	1,101
Third	1,071
Fourth	1,187
Fifth	1,267
Sixth	1,328
Seventh	1,409
Eighth	1,276
Ninth	1,403
Total	11,209

Work was commenced at 6.20 a.m., and at 2.45 the previous record was beaten. It will be seen that Moir's last hour was almost equal to his best. Sir George Clark, Bart., presented Moir with a rose bowl and £50 in recognition of his performance; the close of it was witnessed by the Lord Mayor and other notabilities.

Certificated Mercantile Officers in 1917.—The following particulars concerning masters, mates and engineers who obtained certificates of competency from the Board of Trade in 1917, indicate the sources of supply:—England, 2,018; Scotland, 716; Wales, 342; Ireland, 199; Channel Islands, 4; at sea, 1; Australia, 37; New Zealand, 36; British India, 22; other Colonies, 26; United States, 13; Japan, 7; Russia, 7; other foreign countries, 17; total, 3,445.

QUESTIONS IN PARLIAMENT.

Neutral Vessels on the Clyde.

Colonel Sir F. Hall, on June 5, asked the Secretary to the Admiralty whether officers and sailors were allowed to pass freely up and down the Clyde and to have access to the harbour and dock works in the neighbourhood of Glasgow; and if, in view of the important naval works in progress there and of the desirability of withholding information as to sailings to and from that port, which might reach the enemy through neutral sources, he would consider the possibility of arranging that neutral vessels should be placed under British control in the lower reaches of the river, and a strict limitation kept upon the freedom and movement of such crews while in the Clyde district.

Dr. Macnamara: I assume that my hon. friend refers to the officers and crews of neutral ships making use of these waters in the ordinary course of business. It has not been practicable in the time to ascertain the precise orders which are being locally applied, but if my hon. friend will put a question down this day week, I hope to be in a position to report the result of the inquiries which are being made.

Disinfection of a Steamer.

Mr. Shirley Benn asked the President of the Local Government Board, on June 5, whether he could state what precautions had been taken to prevent the cargo ex ss. *Somali* conveying into England germs of the plague; whether the cargo had been disinfected; and whether he could assure the House that the plague could not be introduced into England through the cargo being discharged into lighters and afterwards distributed from a vessel which required to be afterwards disinfected.

Mr. Hayes Fisher: No disinfection of the cargo of ss. *Somali* has been carried out, or is considered necessary. Precautions were required to prevent the risk of plague-infected rats reaching the shore with the cargo. With this object the ship remained moored in the river and the cargo was discharged bale by bale from the deck into lighters alongside. This proceeding accords with the International Sanitary Convention (Paris, 1912), and offers the best security available against the risk referred to in the question. The disinfection of the vessel, after the cargo was unloaded, was undertaken with the main object of destroying rats in the ship. The quarters occupied by the plague cases were disinfected as soon as the men had been removed to hospital.

National Shipyards.

Mr. Anderson, on June 5, asked the Secretary to the Admiralty whether the Admiralty national shipyards were to be operated entirely by naval or military labour; whether civilian labour was to be dispensed with; and whether it was the view of the Admiralty that the work could be done successfully under these conditions.

Dr. Macnamara: The actual construction of the yards themselves is being carried out by Royal Engineers and German prisoners. I am glad to say that all these operations are in a very forward state. Before we come, as we shall do very soon, to the question of actual ship construction, the problem of the manning of the yards will have to be finally determined; and I can assure my hon. friend that it has for some time past been the subject of very careful consideration amongst us.

SHIPPING AND OTHER MEETINGS.

June 19 (*Wed.*)—**India General Navigation & Railway Company, Ltd.** (Annual), Orient House, New Broad Street, London, E.C., at noon.

June 19 (*Wed.*)—**La Guaira Harbour Corporation** (Annual), Winchester House, London, E.C., at 2.30 p.m.

June 20 (*Thurs.*)—**"Shell" Transport & Trading Company, Ltd.** (Extraordinary General), Winchester House, Old Broad Street, London, E.C., at noon.

SHIPPING SHARE MARKET.

The news from the war zone has militated against a large amount of new business, and in any event the War Bond campaign of the past week would make too urgent a demand upon new capital for investment to allow of much new business being transacted in other markets. The shipping market is, however, generally recognised as among the most vital of essential industries, and the maintenance of a free market for shipping companies' securities is directly beneficial to the country. Royal Mail and Peninsular & Oriental have been steady at last week's prices. The market was inclined for a time to regard rather gloomily Sir Owen Philipps' remark at the Royal Mail meeting that he saw no ground for the very general belief that "the conclusion of peace will be followed by many years of great prosperity for British shipping," but the actual movement of market prices did not show that investors had taken the warning very much to heart. In the provinces particularly there is considerable activity in shipping issues. Among the rumours of the week is that a bonus is to be declared on Cairn Line shares, although there is no indication that the directors will follow precedent in this matter. The price of the shares has nevertheless advanced to 51s. 6d. Moulder Line preference have been dealt in on the report and accounts, which again shows a remarkably strong financial position, thanks to the bold readjustment of the capital account two years ago. The dividend is again 20 per cent., or equal to 10 per cent. on the original capital. The Elder Dempster accounts have also been received by the market and are regarded as satisfactory. In the miscellaneous section iron and steel shares have been in keen demand, Ebbw Vale preference shares being bought on the rumour that the shares are to be split into £1 shares and the interest raised from 6 to 7 per cent.

SHIPPING, SHIPBUILDING, ENGINEERING AND MARINE INSURANCE SHARE LIST.

SHIPPING.

Name.	Share and paid.	Extreme quotations, 1917.	Last ann. div. % or per share.	Yield. %	Quotation (See Note).	Rise or Fall.
	£					
African S.S.	20	30⅜—25½	10	6⅝	30	
Allan Line ... ... Deb.	100	—	4	4⅜	92	
Anchor Line ... Cum. pref.	10	9⅛—8¾	5⅜	6¼	8¾	
Do. ... ... Deb.	Stk.	105⅝—102⅜	4⅜	4⅜	102	
Argentine Nav. ... Cum. pref.	1	25/—14/3	6	5⅜	22/6	
Do. ... ... Ord.	1	20/6—6/6	Nil.	Nil.	16/10½	+ -/4½
Australasian Un. S. Nav. Deb.	Stk.	80½—79⅜	4	5	81	
Belfast Steam ... ... "A"	10 (5pd.)	—	5	5	5	
British & Argen. Nav. ... Deb.	Stk.	84—80	4¾	5⅞	81⅛	
British India Nav. ... Deb.	Stk.	84—82	4⅜	5⅜	81¾	
British S.S. Invest. Trust Def.	Stk.	460—344¼	50*	11⅜	445	
Do. ... ... Pref.	Stk.	105⅜—104	6	5⅞	103⅜	
Do. ... ... Deb.	Stk.	74¼—70	4⅜	6 1/16	73	
Cairn Line ... ... Deb.	Bds.	94—90	5	5⅜	90⅜—91	
Do. ... ... Ord.	1	51/6—40/9	20†	8⅜	41/—	—6/-
Clan Line ... ... Ord.	10	55½—26⅜	25	5½	43⅜xd	
Court Line ... ... Ord.	£1	40/6—29/6	10	5⅛	37/9	
Cunard SS. ... ... Ord.	1	85/—63/9	20*	5	86/3	+ -/3
Do. ... Cum. pref.	Stk.	97¾—82	5	5⅜	86	
Do. ... ... Deb.	Stk.	100—93¼	4⅜	4⅜	97	
Elder Line ... ... Deb.	Stk.	95—89	4⅜	4⅜	103	
Elder Dempster ... Cum. pref.	1	19/—17/-	5⅜	6½	18/4½	
Do. ... ... Deb.	Stk.	89—85	5	5⅞	83½	
Ellerman Lines ... Pref. Ord.	10	9½—8⅜	6⅜	6¼	9⅜	
Do. ... Guar. pref.	10	9—8⅜	4⅜	5¼	8¼	
France Fenwick ... Cum. pref.	5	95/3—85/—	5⅜	6⅛	85/—	
Furness, Withy ... Ord.	1	60/9—41/6	20*	6⅜	66/—	— -/3
Do. ... Cum. pref.	10	9—7¾	5	5⅜	8⅜	
General Steam Nav. Ord.	1	24/9—21/6	10	7⅜	31/6	
Do. ... ... Pref.	1	19/4⅜—15/-	5	6¼	15/6	
Houlder Line ... Cum. pref.	5	82/6—75/—	5⅜	6⅜	81/3	
Do. ... ... Deb.	Stk.	—	4⅜	4⅜	91	
Houlder Bros. ... Cum. pref.	5	—	5⅜	6⅜	4	
Do. ... ... Deb.	Stk.	—	4⅜	5⅜	82	
India Gen. Nav. & Rly. ... Ord.	10	11⅜—8¼	6	5⅜	11⅜	
Indo-China N. ... Pref. Ord.	5	97/6—87/6	6	6⅜	97/6	
Irrawaddy Flotilla	40	—	12⅜	5	100	
Khedivial Mail ... ... Ord.	1	40/—24/-	20	12¾	38/9	+1/3
Do. ... ... Pref.	5	76/3—70/-	5⅜	7⅜	72/6	
Do. ... ... Deb.	Stk.	95⅜—93	4⅜	4⅜	94¼	
King Line ... ... Ord.	1	42/6—31/6	12	5⅞	48/-	
Lamport & Holt ... Cum. pref.	£1	20/4⅜—18/-	6	6	19/6	+ -/3
Leyland (F.) ... Cum. pref.	10	8⅜—7¼	5	5 7/8	8 1/16	
Mercantile SS. ... ... Ord.	5	30⅛—15	40	8	30⅛	
Do. ... ... Pref.	1	21/—15/9	5	6⅜	20/-	
Moor Line ... ... Ord.	10	35—20	30	6⅜	41	
Nelson Steam Nav. ... Deb.	100	—	5	5⅛	98¾	
New Zealand ... ... Ord.	£10	—	8	2⅜	32½	
Do. ... ... Deb.	Stk.	87⅞—86⅜	4	4⅝	87	
Nitrate Producers SS. ... Ord.	5	25⅝—20	30	6¼	25⅜	
Do. ... Cum. pref.	5	100/—90/-	5	5	5	
Oceanic Steam. Nav. ... Deb.	100	98⅛—84	4⅛	4⅝	95⅜	
Orient.Stm.Nav.Co. Cum. pref.	10	9¼—8⅜	5	5⅜	9⅛	
Do. ... ... Deb.	100	92—88	4⅜	5⅛	87	
P. & O. S. N. ... Cum. pref.	100	93¾—84	5	5⅜	90½	+ ¼
Do. ... ... Def.	100	342—295	18	5⅜	341	+3
Do. ... ... Deb.	Stk.	65⅛—63½	3½	5⅜	63	
Prince Line	1	6⅜—3/-	30	5⅛	105/-	
R.M.S.P. ... ... Ord.	100	125—109½	7	5¾	122⅜	
Do. ... ... Pref.	Stk.	85⅛—80	5	6	84	
Do. ... ... Deb.	Stk.	86—79	4⅜	5⅜	78½	
Shaw, Savill & Alb. Cum. pref.	5	87/6—80/-	5⅛	5⅜	85/-	
Shell Transport ... ... Ord.	1	6¼—96/3	35	5¾	6	
Do. ... Cum. pref.	10	9¼—9⅛	5	5¾	8⅜	
Sutherland SS. Co.	£1	75/—50/9	30	5¾	1⅜xd	
Tyne-Tees Steam... ... Ord.	£1 (10/- pd.)	—	20	6 1/4	30/6	+ -/6
Union-Castle SS. Cum. pref.	10	7¾—7¼	4⅜	6	7⅜	
Do. ... ... Deb.	Stk.	90—86	4	4⅜	90	
West Hartlepool ... ... Pref.	10	7⅜—7⅛	5⅜	6⅝	8	

INSURANCE.

Alliance	20 (2·4 pd.)	10½—9	12/-	7	9¾xd	+ ⅛
London Assurance	25 (12½ pd.)	60⅛—48¾	22	7	65 5/16	
Merchants' Marine Insurance ...	10 (2½ pd.)	10⅛—6¾	10	6	10⅜	
N. British & Mercantile Ord.	25 (6¼ pd.)	36—29	40/-	6⅜	34	
Phœnix Assurance ...	10 (1 pd.)	7⅛—6	40	7	8	— 1/16
Royal Exchange Assurance ...	Stk.	241⅜—187	10	4⅛	242½xd	
Sea Insurance	10 (2 pd.)	27⅛—24⅞	10	6	25⅜	
World Marine, Limited ...	5 (2 pd.)	6⅜—55/	10	8	7 9/16	+ 1/16

IRON AND STEEL.

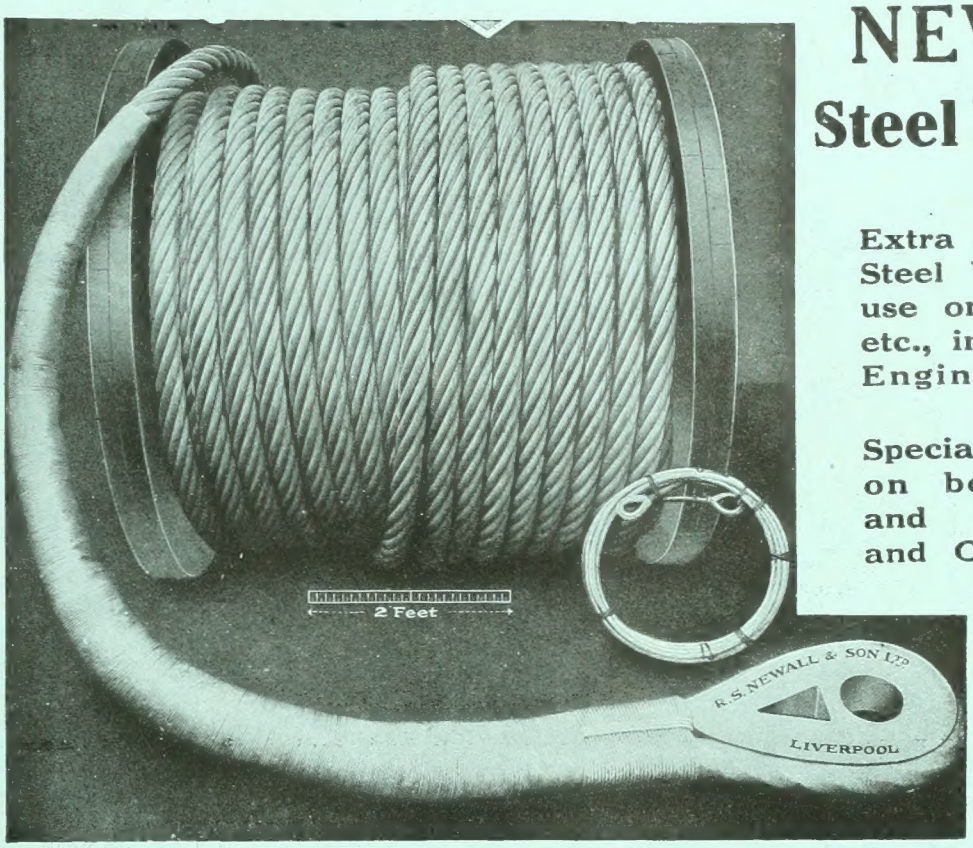
Name.	Share and paid.	Extreme quotations, 1917.	Last ann. div. % or per share.	Yield. %	Quotation (See Note).	Rise or Fall.
	£					
Babcock & Wilcox... ... Ord.	1	68/—52/6	15	4½	67/9xd	+ 2/-
Baldwins ... Cum. pref.	1	20/—15/-	5⅜	5⅜	20/3	+ -/3
Do. ... ... Deb.	Stk.	84—82	4⅜	5⅛	84	
Bayliss, Jones ... Cum. pref.	1	—	5	10	10/3	
Bell Bros. ... ... Cum. pref.	10	10—9⅜	6	6	9⅜	
Do. ... ... Deb.	Stk.	80—73¾	5	7	74	
Bessemer (Henry) ... Ord.	1	34/6—24/6	12½	7⅜	32/-	
Bolckow Vaughan ... Ord.	1	30/—22/2	11	7⅛	28/3	— -/4½
Do. ... ... Cum. pref.	20	17½—16⅜	5	5⅜	16⅜	
Cargo Fleet Iron ... ... Ord.	1	24/9—17/3	3	2⅜	26/10½	+ -/7½
Do. ... ... Deb.	100	84—81¼	4⅜	5⅜	83	
Consett Iron Co. ... ... Ord.	1	36/3-24/10⅜	50	10	97/6	
Dominion Iron & Steel	Bds.	88⅜—71⅜	5	7	73	
Dorman, Long ... ... Ord.	1	50/—30/9	8†	—	34/9	—1/6
Do. ... ... Deb.	Stk.	—	4	5½	71	
Ebbw Vale Steel & Iron Ord.	1	30/6—24/6	12½	9	30/9	+ -/9
Guest, Keen & Nttefids Ord.	1	89/—62/6	15*	3⅜	85/-	
Do. ... ... Cum. pref.	5	5⅞—5	5	4⅛	5⅜	
Do. ... ... Deb.	Stk.	79¼—73¾	4	5¼	76⅜	
Hadfield's Steel Foundry Ord.	1	107/6—78/6	30	5⅜	100/6	
Ibbotson Bros.	5 (4 pd.)	7—6¼	7½	4½	7⅜	
Jessop (W.) & Sons ... Ord.	5 (4 pd.)	10—8	15*	6⅜	9¼	
Lanarkshire Steel Cum. pref.	10	—	5	7⅛	7	
Lysaght (J.) ... Cum. pref.	1	25/—20/-	6	6	20/6	
Do. ... ... 2nd pref.	1	19/9—19/4⅜	6	6	19/6	
Manganese Bronze ... Ord.	1	—	6	11	1 1/16	
Do. ... ... Cum. pref.	1	—	6	8	2	
North-Eastern Steel ... Deb.	Stk.	—	4⅜		78½	
Palmers Ship & Iron "A" ...	1	13/—9/9	Nil.	Nil.	13/9	
Scott (Walter) ... ... Ord.	1	29/4½—21/3	15	10⅜	26/4½	
Do. ... ... Pref.	1	19/9—16/-	6	7⅜	2 /6	
Sheffield Forge ... ... Ord.	1	—	15	4¼	70/-	
Shelton Iron & Steel ... Ord.	1	24/6-16/10⅜	7⅛	6	20/3	
Do. ... ... Deb.	100	91⅛—91	5	5⅜	91/⅜	
S. Durham Steel & Iron Ord.	1	42/9—29/6	10	4¼	43 -	
Do. ... ... Cum. pref.	1	20/9-18/7⅛	6	6⅛	20/7⅜	
Do. ... ... Deb.	Stk.	81—80	4⅛	5⅛	80	
Steel Co. of Scotland ... Ord.	10	—	10	6¼	15⅜	
Stewarts & Lloyds Pref. ord.	10	17—16	10	6¼	16	
Do. ... ... Cum. pref.	10	—	6	5⅜	10⅜	
Stone (J.) ... ... Cum. pref.	10	8⅜—7⅛	5	6⅛	7 1/16	
United States Steel ... Ord.	100$	124—109⅜	8	7	103 11/16	
Do. ... ... Cum. pref.	100$	—	7	7	115½xd‡	
Vickers Ltd. ... ... Ord.	1	44/6—35/3	12½	6	42/10½	+ -/10½
Do. ... ... Pref.	Stk.	84—81	5	6	83	
Do. ... ... Deb.	Stk.	79 74½	4	5 3/16	77	
Weardale Steel ... Def. ord.	1	32/3 - 23/—	19¼	13¾	29/—	
Do. ... ... Pref. ord.	1	25/3—18/9	6	5¾	25/-	
Do. ... ... Deb.	Stk.	—	4	6½	62	
Workington Iron & Steel Ord.	1	30/3—21/-	10	6⅛	28/9	

SHIPBUILDING AND MARINE ENGINEERING.

Armstrong, Whitworth Ord.	1	45/—36/-	12½	5¾	42/-	+ -/6
Do. ... ... Cum. pref.	5	73/9—67/-	4	5¾	70/-	
Do. ... ... Deb.	Stk.	78—73	5	6⅜	75½	
Beardmore (W.) ... ... Deb.	100	93—89	4⅜	5	93	
Brown (John) ... ... Ord.	1 (15s. pd.)	29—/—22/9	12½	7	27/10½	— -/1½
Do. ... ... Cum. pref.	10	8⅜—7⅞	5	5⅜	8⅜	
Cammell Laird ... ... Ord.	5	7⅛—6¾	10	7⅛	6⅞	
Do. ... ... Cum. pref.	5	85/6—74/6	5	6¼	75/-	
Do. ... ... Deb.	100	83⅜—79⅛	4⅜	5⅜	84	
Dunlop (Jas.) ... ... Ord.	1	28/9—16/-	10	9¾	22/1⅛	
Do. ... ... Cum. pref.	1	18/9—16/6	6	7¼	18/-	
Fairfield Shipbldg Cum. pref.	10	8¾—8¼	6	7⅛	8¾	
Fleming & Ferguson ... Ord.	10	—	10	7	14⅜	
Gray (Wm.) ... ... Deb.	100	100—95⅛	4⅜	4⅞	97⅜	
Hawthorn (R. & W.) Leslie Ord.	1	—	12⅜	6¼	38/6	
Henderson (D. & W.) Cum. pref.	1	—	5	9	9 1/16	
Richardsons Westgarth Ord.	1	10/3—5/-	Nil.	Nil	10/-	
Do. ... ... Cum. pref	1	19/9—12/6	Nil.	Nil.	18/1⅛	
Do. ... ... Deb.	Stk.	67—62	4⅜	6⅜	66	
Simons (W.) ... Cum. pref.	10	—	5	5	9 1/16	
Swan, Hunter & W. R. ... Ord.	1	51/—33/6	12½	5⅛	52/3	
Do. ... ... Cum. pref.	1	17/3—17/-	5	5⅜	18/3	+1/3
Do. ... ... Deb.	Stk.	78—77	4¼	5⅜	77	
Thornycroft (John I.) ... Ord.	1	45/—16/-	17½	8⅛	38/-xd	
Do. ... ... Cum. pref	1	19/—16/-	6	6⅜	18/9	
Do. ... ... Deb.	100	—	5	5⅛	82¼	— ⅛
Wallsend Slipway ... Ord.	1	2—1⅛	10	2⅜	39/6	
Do. ... ... Cum. pref.	1	1—1	5	5	19/-	

* Including bonus. † Also 20 % in shares. ‡ Treasury price.

NOTE.—Owing to the nominal character of business in many shares the quotations in this column do not necessarily represent the actual prices at which business can be transacted, but are intended to indicate the average price at which business has occurred.



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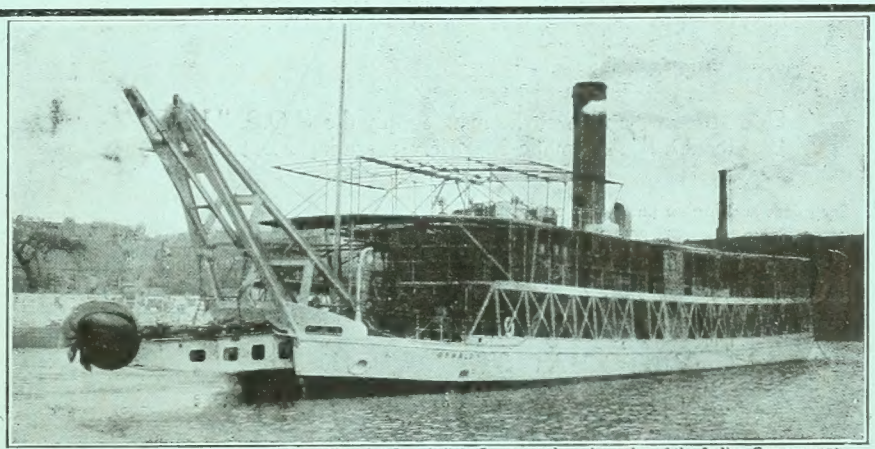

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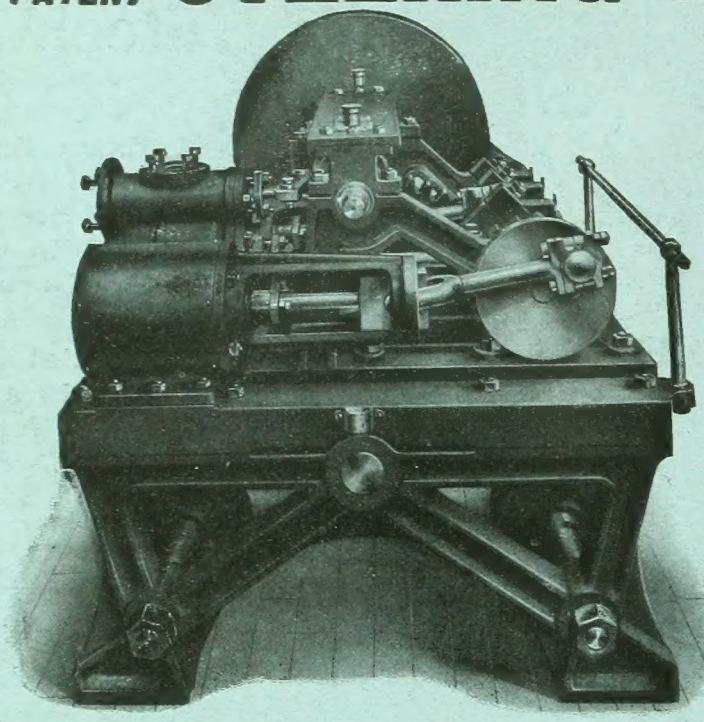

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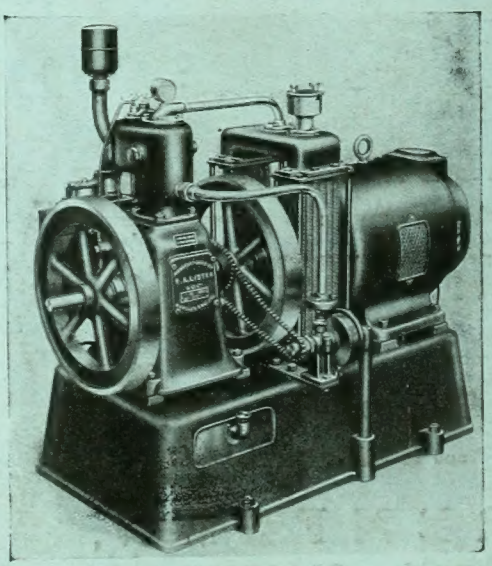

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